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ABSTRACT

Four sequential Basic Skill Levels (levels G, H, HA, and I) of a self-paced, individualized mathematics program designed to improve the achievement of junior high school students are presented in this student workbook. Each level includes a pretest, four to seven lessons, quizzes (checkpoints) after each fourth lesson, a posttest, and a level review worksheet. Students must successfully complete the level they are on before proceeding to the next. The levels presented in this workbook are: (1) introduction to fractions; (2) multiplying and dividing fractions; (3) adding and subtracting fractions; and (4) working with fractions. (DC)

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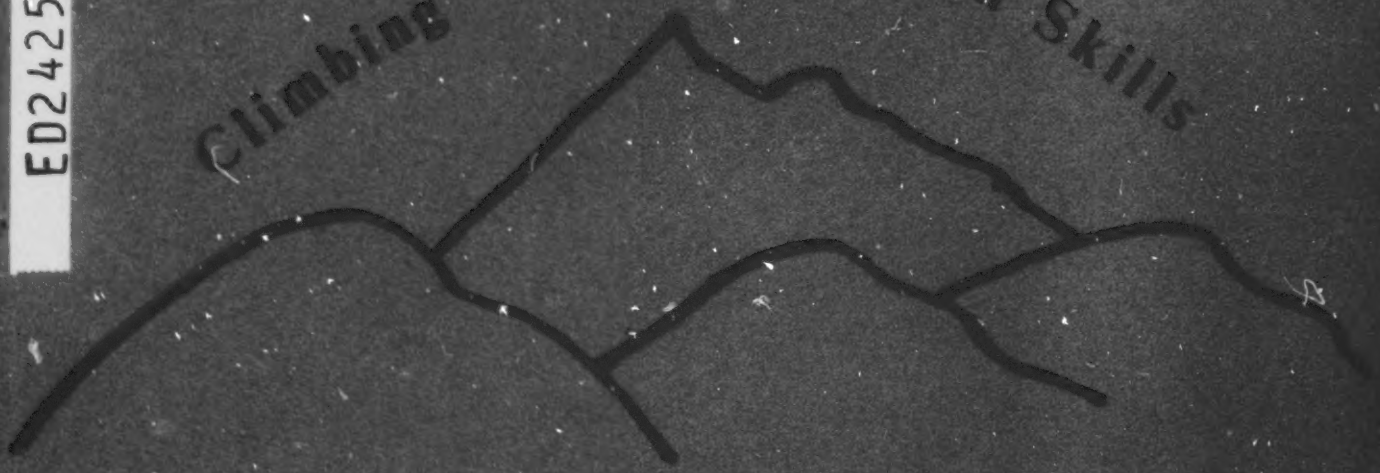
Climbing the Hills of Math Skills



CALIFORNIA

# DEMONSTRATION

MATHEMATICS PROGRAM

# Fractions

128

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TABLE OF CONTENTS

HILLVIEW JR. HIGH SCHOOL
CALIFORNIA MATH DEMONSTRATION PROGRAM

FRACTIONS

LEVEL G Introduction to Fractions

LEVEL H Multiplying and Dividing Fractions

LEVEL HA Adding and Subtracting Fractions

LEVEL I Working with Fractions

(Each Level consists of a Pretest, Lessons, Checkpoints, Posttest and Level Review)

LEVEL G PRETEST

Introduction to Fractions

NAME _____

PERIOD _____

DATE _____

1. Circle the multiples of 4.

15, 16, 4, 18. 28, 10, 12, 34

2. Write a common multiple of 6 and 8 _____

3. What is the least common multiple of 6 and 10 ? _____

( G - 1 )

4. A number is divisible by 10 if the _____ digit is _____.

5. A number is divisible by 5 if the _____digit is _____ or _____.

6. An even number is divisible by _____.

7. A number is divisible by 2 if the last digit is ___,___,___,___, or ____.

( G - 2 )

8. If the single digit sum of the digits is _____, _____, or _____, the number is divisible by 3.

9. Circle the numbers below that are divisible by 3.

45, 31, 567, 51, 407, 64, 72, 303

10. Write yes or no in each box

| Divisible | Numbers | | | | |
|---|---|---|---|---|---|
| | 8,400 | 405, | 87,633 | 800 | 501 |
| by 2 | | | | | |
| by 3 | | | | | |
| by 5 | | | | | |
| by 10 | | | | | |

( G - 3 )

11. In the problem 5 x 8 = 40, 5 and 8 are called _____ and 40 is called the _____.

12. List all the factors of 28. _____

13. List all the factors of 50. _____

14. A prime number has only _____ factors, ____and _____.

PRETEST G (cont.)

15. Circle the prime numbers: 33, 15, 13, 52, 87, 89, 51, 43, 47

16. Write Prime or Composite a. 21 _____

b. 41 _____ c. 57 _____

( G - 4 )

17. The number 2 is the only prime that is _____.

Find the prime factorization.

18. a. 15 = _____ b. 48 = _____

c. 425 = _____ d. 35 = _____

Write in exponential form

19. a. 2 x 2 x 2 = _____ b. 2 x 2 x 3 = _____

c. 3 x 5 x 5 x 5 = _____ d. 5 x 7 x 11 x 11 = _____

( G - 5 )

20. What fraction is represented by the shaded parts ? _____

21. The top number of a fraction is called the _____.

22. Choose the correct terms. Write number in blanks.

a. _____ $\frac{3}{5}$

b. _____ $\frac{4}{4}$

c. _____ $3\frac{1}{2}$

d. _____ $\frac{9}{7}$

e. _____ $\frac{5}{16}$

1. Simple or Proper Fraction
2. Improper Fraction
3. Mixed Number

( G - 6 )

23. Simplify these Fractions. a. $\frac{3}{9}$ = _____ b. $\frac{8}{64}$ = _____

c. $\frac{9}{12}$ = _____ d. $\frac{70}{100}$ = _____ e. $\frac{51}{68}$ = _____

f. $\frac{55}{200}$ = _____ g. $\frac{57}{133}$ = _____ h. $\frac{39}{65}$ = _____

( G - 7 )

# INTRODUCTION TO FRACTIONS G-1

Name_____ Period_____ Date_____

**Objective:** You will be able to find common multiples and the least common multiple of a pair of numbers.

## COMMON MULTIPLES

A) Finish this times table chart:

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 4 X | 4 | 8 | 12 | | | | | | |

12 is a multiple of 4, since 3 x 4 = 12

15 is not a multiple of 4, since there is no whole number times 4 that equals 15

B) Finish this times table chart:

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 3 X | 3 | 6 | | | | | | | |

21 is a multiple of 3, since _____ x 3 = 21

15 is a multiple of 3, since _____ x 3 = 15

Is 26 a multiple of 3? _____

List two other multiples of 3: _____ and _____

C) Multiples of 4: 4, 8, 12, 16, 20, 24, 28, 32, 36, . . . . . *

Multiples of 3: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, . . .

In the list above, circle the COMMON (same) MULTIPLES of 4 and 3.

Complete:

Multiples of 6: 6, 12, __, __, __, ___, ___, . . . .

Multiples of 9: 9, __, __, __, __, ___, ___, . . . .

Circle the common multiples.

D) Find the first three common multiples of each pair:

1) 5 and 10 _____ 2) 4 and 8 _____

3) 6 and 9 _____ 4) 2 and 5 _____

5) 3 and 8 _____ 6) 4 and 6 _____

* . . . . means "and so on"

LEAST COMMON MULTIPLES

A) Multiples of 4: 4, 8, 12, 16, 20, 24, 28, 32, 36, . . . . . .

Multiples of 3: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, . . .

Common multiples of 4 and 3 are 12, 24, 36, . . . . .

The lowest multiple that is common to 4 and 3 is (12) .
This is the LEAST COMMON MULTIPLE (LCM)

B) Multiples of 2: 2, 4, ___, ___, ___, ___, ___, ___, ___, ___,

Multiples of 5: 5, ___, ___, ___, ___

Common multiples of 2 and 5: _____

Least common multiples (LCM) of 2 and 5 is _____

C) Find the least common multiple (LCM) of each pair:

7) 5 and 6 _____ 8) 5 and 9 _____

9) 8 and 12 _____ 10) 12 and 18 _____

11) 7 and 3 _____ 12) 5 and 11 _____

13) 6 and 8 _____ 14) 6 and 12 _____

# INTRODUCTION TO FRACTIONS G-2

Name_____ Period_____ Date_____

| Objective: You will be able to know if a number is divisible by 2, 5, or 10. |
|---|

"Divisible By" means that when you divide, there is no remainder.

Example: $12 = 4 \times 3$

$$4\overline{)12}\ 3 \qquad -12 \qquad 0$$

"NO" ←remainder→

$$3\overline{)12}\ 4 \qquad -12 \qquad 0$$

We say 12 is divisible by 3 or 12 is divisible by 4.

1) $72 = 8 \times 9$ Is 72 divisible by 8? _____

by 9? _____

by 11? _____

No, because 11 will not divide into 72 evenly.

$$11\overline{)72}\ 6 \qquad -66 \qquad 6$$

←This has a remainder

2) Find the first 10 multiples of 2 by finishing this chart.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 X | 2 | 4 | 6 | | | | | | | |

3) What are the last digits of these multiples of 2?

_____

RULE: Any number is divisible by 2 if the last digit is 0, 2, 4, 6, 8.

Any number divisible by 2 is called even.

Any number not divisible by 2 is called odd.

CIRCLE THE NUMBERS BELOW THAT ARE EVEN:

4) 2, 7, 8, 9, 11, 14, 16, 20, 23

The numbers you circled above are also divisible by 2.

It doesn't matter how many digits are in the number. Just look at the last digit.

Are the following numbers divisible by 2? Write yes or no.

5) 3,491 _____ 6) 8,046 _____

7) 100,152 _____ 8) 400,001 _____

9) 2, 998 _____ 10) 7,764 _____

11) 3,079,677 _____ 12) 546,370 _____

Find the multiples of 5 by finishing the chart.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 5 X | 5 | 10 | | | | | | | |

Now look at the last digit of each product. It is _____ or _____.

RULE: A number is divisible by 5 if the last digit is 0 or 5.

Remember: It all depends on the last digit.

Are the following numbers divisible by 5? Write yes or no.

13) 75,048 _____ 14) 145,782 _____

15) 3,000,000 _____ 16) 67,955 _____

17) 2,127 _____ 18) 390,006 _____

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 10 X | 10 | 20 | 30 | 40 | | | | | |

Now look at the last digit of each product. It is _____.

RULE: A number is divisible by 10 if the last digit is 0.

Are the following numbers divisible by 10? Write yes or no.

19) 30,504 _____ 20) 870,500 _____

21) 21,970 _____ 22) 30,007 _____

G-2 (cont)

RULES: 2 - a number is divisible by 2 if the last digit is 0,2,4,6,8.

5 - a number is divisible by 5 if the last digit is 0, 5.

10 - a number is divisible by 10 if the last digit is 0

| DIVISIBLE | 35 | 40 | 100 | 75 | 1036 | 318 | 500 | 9024 |
|---|---|---|---|---|---|---|---|---|
| 23) by 2 | | | | | | | | |
| 24) by 5 | | | | | | | | |
| 25) by 10 | | | | | | | | |

26. If the last digit of a number is _____, it is divisible by 2, 5, and 10.

Name_____ Period_____ Date_____

Objective: You will be able to know if a number is divisible by 3

1) Find the first 9 multiples of 3 by finishing this chart.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 3 X | 3 | 6 | 9 | 12 | | | | | |
| | | | | 1 + 2 | 1 + 5 | | | | |
| | 3 | 6 | 9 | 3 | | | | | |

2) The sum of the digits for all multiples of three is _____ or _____ or _____.

To find out if a number is divisible by 3, follow these steps:

STEP 1: Add digits of the number together. Is it a single digit sum? yes or no

If yes, go to STEP 2; If no, repeat STEP 1 until you have a single digit sum.

STEP 2: If the single digit sum is 3, 6, or 9, the original number is divisible by 3.

Are the following numbers divisible by 3?

EXAMPLES:

204

Step 1: 2 + 0 + 4 = 6

Step 2: yes,

Step 2: (204 is divisible by 3 because the sum of the digits is 6.)

52

Step 1: 5 + 2 = 7

Step 2: No,

(52 is not divisible by 3 because the sum of the digits is not a 3, 6, or 9.)

687

Step 1: 6 + 8 + 7 = 21

Step 1: 21
2 + 1 = 3

Step 2: Yes, (687 is divisible by 3 because the sum of the digits is 3)

Do These

3) 27

Step 1: __ + __ = ___

Step 2: Yes or No

G-3 (cont)

4) 113

Step 1: ___ + ___ + ___ = ___

Step 2: Yes or No

5) 798

Step 1: ___+___+___=___

Step 1: ___+___ = ___

Step 2: Yes or No

Are these numbers divisible by 3?

| | Number | Sum of Digits | Divisible by 3? (Yes or No) |
|---|---|---|---|
| 6) | 231 | | |
| 7) | 4352 | | |
| 8) | 111 | | |
| 9) | 1821 | | |
| 10) | 53 | | |
| 11) | 3465 | | |

DIVISIBILITY RULES:

2 - Last digit is 0, 2, 4, 6, 8.
3 - Final single digit sum.
5 - Last digit is 0 or 5
10 - Last digit is 0

Finish this chart. Write Yes or No

| | Divisible | 24 | 108 | 50 | 348 | 405 |
|---|---|---|---|---|---|---|
| 12) | by 2 | | | | | |
| 13) | by 3 | | | | | |
| 14) | by 5 | | | | | |
| 15) | by 10 | | | | | |

# INTRODUCTION TO FRACTIONS G-4

Name_____Period____Date_____

| Objective: You will be able to find all factors of a number and recognize numbers as prime or composite. |
|---|

FACTORS PRODUCT

2 x 4 = 8

1) The answer to a multiplication problem is called the _____

2) The numbers multiplied together are called _____ of the product.

These are all the factors of 24.

24: 1, 2, 3, 4, 6, 8, 12, 24

Here are two way to find all factors of a number:

METHOD 1

List of factors

24:

1 is a factor of every number

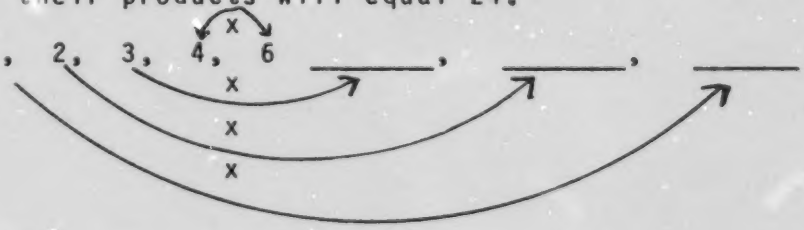
2 is a factor because last digit is 4

3 is a factor because single digit sum is 6

4 is a factor $4\overline{)24} = 6$ no remainder

6 is a factor because $6\overline{)24}$ 4

since 4 x 6 = 24, STOP and go back and find factors for 1, 2 and 3 so that their products will equal 24.




METHOD 2

You could find pairs of factors first starting with 1times the number itself, then 2 times what = 24 and so on.

G-4 (cont)

Find all factors for 24:

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | X | 24 | (1 | | | | | | | 24) |
| 2 | X | 12 | (1, | 2, | | | | | 12, | 24) |
| 3 | X | 8 | (1, | 2, | 3, | | | 8, | 12, | 24) |
| 4 | X | 6 | (1, | 2, | 3, | 4, | 6, | 8, | 12, | 24) |

5 X doesn't go evenly

6 is already on the other side

STOP

List all factors for these numbers:

1) 30: _____ 2) 13: _____

3) 15: _____ 4) 12: _____

5) 16: 1, 2, 4, 8, 16 (4 x 4 = 16, but list 4 only once) 6) 9: _____

7) 7: _____ 8) 28: _____

9) 22: _____ 10) 18: _____

Problem 2, the number 13, only had 2 factors, one and the number itself. This number has a special name PRIME number. A prime number has only two factors, one and itself. List other prime numbers in the problems above. _____

All the other numbers in the problems above have more than 2 factors and are called COMPOSITE. "1" is neither prime or composite because it is used in the fefinition of a prime number.

Complete the chart:

| | | List of Factors | Prime or Composite |
|---|---|---|---|
| 11) | 11 | 1, 11 | Prime |
| 12) | 12 | 1, 2, 3, 4, 6, 12 | Composite |
| 13) | 13 | | |
| 14) | 14 | | |
| 15) | 15 | | |
| 16) | 16 | | |
| 17) | 17 | | |
| 18) | 18 | | |
| 19) | 19 | | |
| 20) | 20 | | |

LEVEL G CHECKPOINT 1 - 4 NAME _____

Introduction to Fractions PERIOD _____

DATE _____

1. Write the first five multiples.

a. 4: _____ b. 6: _____

2. What is the least common multiple of 4 and 6? _____

(G-1)

3. Write the divisibility rule for 2: ___ the last digit is _____

4. Write the divisibility rule for 5: _____

5. Write the divisiblity rule for 10: _____

(G-2)

6. If the single digit sum of the digits is ___, ___ or ___, the number is divisible by 3.

7. Are these numbers divisible by 3 ?

| number | single digit sum of the digits | Divisible by 3? yes or no |
|---|---|---|
| a. 31,201 | _____ | _____ |
| b. 146,514 | _____ | _____ |
| c. 111,111,111 | _____ | _____ |

(G-3)

8. List all the factors. a. 16: _____

b. 30: _____

9. A prime number has only two factors _____ and _____.

10. Circle the prime numbers.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18

11. Write Prime or composite.

a. 25: _____ b. 69: _____

c. 47: _____ d. 83: _____

(G-4)

LEVEL G CHECKPOINT- A 1 - 4

Introduction to Fractions

NAME _____

PERIOD _____

DATE _____

1. Write the first five multiples.

a. 2: _____ b. 5: _____

2. What is the least common multiple of 2 and 5? _____

(G-1)

3. Write the divisibility rule for 5: the digit is _____

4. Write the divisibility rule for 2: _____

5. Write the divisibility rule for 10: _____

(G-2)

6. If the single digit sum of the digits is _____, _____ or _____ the number is divisible by 3.

7. Are these numbers divisible by 3 ?

| Number | single digit sum of the digits | Divisible by 3 yes or no? |
|---|---|---|
| a. 101 | _____ | _____ |
| b. 4,333 | _____ | _____ |
| c. 55,122 | _____ | _____ |

(G - 3)

8. List all the factors. a. 18: _____

b. 40: _____

9. A _____ number has more than two factors.

10. Write the first ten prime numbers.

_____

11. Write PRIME or COMPOSITE.

a. 43: _____ b. 87: _____

c. 31: _____ d. 51: _____

(G-4)

# INTRODUCTION TO FRACTIONS G-5

Name_____ Period_____ Date_____

| Objective: | You will be able to find the prime factorizations of any whole number less than 100 and write them in exponential form. |
|---|---|

Here is a list of the first eight primes: 2, 3, 5, 7, 11, 13, 17 and 19.

1) What is the smallest prime number? _____

2) What prime number(s) are even? _____

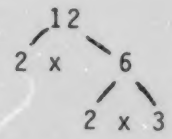
3) The prime number 2 is the only prime that is _____ (so any even number larger than 2 has at least one prime factor of 2)

Now we want to factor numbers into primes. One way to do this is to use a diagram called a factor tree. Circle the factor when the factor is a prime number.

EXAMPLE: Find the prime factorization of 12.

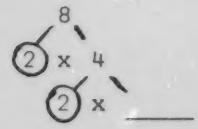
$12 = 2 \times 6$

$= 2 \times 2 \times 3$

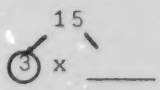



12 can be written as 2 x 6 and 6 can be written as 2 x 3. So if we multiply 2 x 2 x 3 we get our number 12. Here are some partially completed factor trees. You finish them.

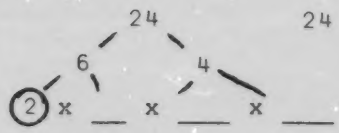
Complete the factor tree and the equation.

1. 

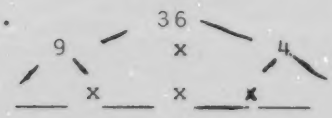

$8 = 2 \times 2 \times$ _____

2. 

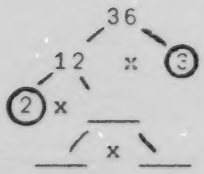

$15 = 3 \times$ _____

3. 


$24 =$ ___ x ___ x ___ x ___

4. 


$36 =$ ___ x ___ x ___ x ___

5. 


$36 =$ ___ x ___ x ___



Compare problems 4 and 5. Are the factors the same? _____

G-5 (cont)

Find the prime factorization of each of these numbers. Use factor trees on scratch paper if you need to.

| | Number | | Prime Factorization |
|---|---|---|---|
| 6. | 14 | = | 2 x 7 (both factors are prime numbers) |
| 7. | 18 | = | |
| 8. | 32 | = | |
| 9. | 16 | = | |
| 10. | 35 | = | |
| 11. | 60 | = | |
| 12. | 57 | = | |
| 13. | 81 | = | |
| 14. | 39 | = | |
| 15. | 42 | = | |
| 16. | 9 | = | |
| 17. | 6 | = | |
| 18. | 10 | = | |
| 19. | 25 | = | |
| 20. | 21 | = | |
| 21. | 44 | = | |
| 22. | 30 | = | |
| 23. | 45 | = | |
| 24. | 50 | = | |

Many times a factor is repeated several times in the prime factorization. You may represent them using exponents. If the number is prime write "Prime" in the blanks.

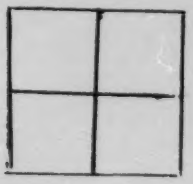
| | Number | | Prime Factorization | | Exponential Form |
|---|---|---|---|---|---|
| 25. | 16 | = | 2 x 2 x 2 x 2 | = | $2^4$ |
| 26. | 24 | = | 2 x 2 x 2 x 3 | = | $2^3 \times 3$ |
| 27. | 28 | = | 2 x 2 x 7 | = | |
| 28. | 12 | = | | = | |
| 29. | 32 | = | | = | |
| 30. | 48 | = | | = | |
| 31. | 27 | = | | = | |
| 32. | 53 | = | | = | |
| 33 | 125 | = | | = | |

Name_____ Period_____ Date_____

Objective: You will be able to write fractions from pictures and name the numerator and denominator, proper and improper fraction and mixed numbers.

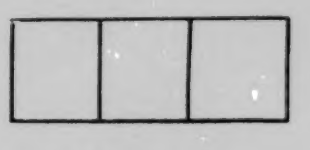
Numbers called fractions are used to name parts of something. Into how many equal parts is each of these figures divided?

1) _____



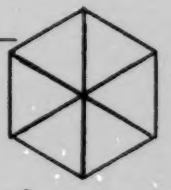
2) _____

3) _____



4) _____

5) _____



6) _____

7) In figure 1, each part is 1 out of _____ or $\frac{1}{4}$.

8) In figure 2, each part is 1 out of _____ or _____

9) In figure 3, each part is _____ out of _____ or $\frac{1}{3}$.

10) In figure 4, each part is _____ out of _____ or _____.

11) In figure 5, each part is _____ out of _____ or _____.

12) In figure 6, each part is _____ out of _____ or _____.

The final number in the exercises above is called a fraction.

The bottom number of a fraction tells how many equal parts an object has been divided into and the top number tells how many of those parts are to be used.

13) $\frac{3}{4}$ tells you to divide some object into 4 parts and to use _____ of them.

14) $\frac{1}{5}$ tells you to divide some object into __ parts and to use _____ of them.

15) The top number of a fraction is called the numerator. In the fraction $\frac{4}{5}$, _____ is the numerator

16) The bottom number of a fraction is called the denominator. In the fraction $\frac{5}{8}$, _____ is the denominator.

G-6 (cont)

Write a fraction to tell what part of each region below is shaded.

17)

_____

18)

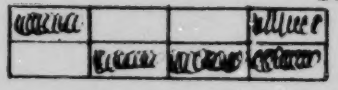
_____

19)

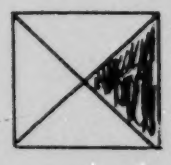
_____

20)

_____

21) 

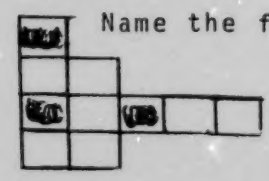
_____

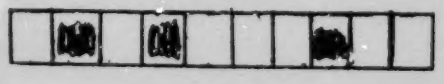
22) 

_____

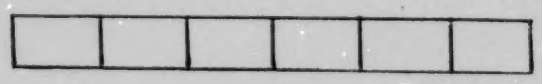
23) In the spaces below are 3 different ways to picture one fraction.

Name the fraction: _____



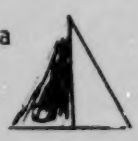


In the space below draw and shade a picture to show $\frac{5}{6}$.

24) 

25) In the space below draw and shade a picture to show $\frac{2}{10}$.

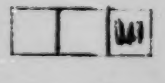
Write the fraction that tells how much of each figure is colored.

26) a 

_____

b

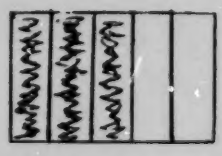
_____

c 

_____

d

_____

27) 

_____

_____

_____

_____

Draw a line segment between each fraction and number word that name the same number.

| | a. | | b. | |
|---|---|---|---|---|
| 28) | one half | $\frac{4}{5}$ | three eighths | $\frac{7}{9}$ |
| 29) | two thirds | $\frac{3}{4}$ | four sevenths | $\frac{3}{8}$ |
| 30) | three fourths | $\frac{2}{3}$ | three sevenths | $\frac{3}{7}$ |
| 31) | four fifths | $\frac{1}{2}$ | seven eighths | $\frac{4}{7}$ |
| 32) | five sixths | $\frac{5}{6}$ | seven ninths | $\frac{7}{8}$ |

Write a fraction for each of the following:

| | a | | b. | |
|---|---|---|---|---|
| 33) | numerator 4, denominator 7 | ____ | three fifths | ____ |
| 34) | numerator 5, denominator 8 | ____ | two sevenths | ____ |
| 35) | denominator 10, numerator 9 | ____ | four ninths | ____ |

Each fraction that you wrote had a top and a bottom number. The top number is called the <u>numerator</u>, and the bottom number is called the <u>denominator</u>.

36) In the fraction $\frac{2}{3}$, the numerator is _____.

37) In the fraction $\frac{2}{3}$, the denominator is _____.

38) In the fraction $\frac{7}{8}$, the 7 is called the _____.

39) In the fraction $\frac{7}{8}$, the 8 is called the _____.

40) Write a fraction which has a denominator of 5 and a numerator of 7. _____

Write a fraction to represent the shaded part of each picture below.

41)

_____

42)

_____

43)

_____

$3\frac{6}{7}$ is a MIXED NUMBER. It is called mixed because it has a whole number mixed with a fraction.

Circle the mixed numbers below

44) $2\frac{5}{8}$ $\frac{36}{36}$ $1\frac{1}{2}$ $\frac{11}{4}$ $\frac{3}{5}$ $1\frac{1}{10}$ 35

$\frac{9}{32}$ is a SIMPLE FRACTION, PROPER OR COMMON FRACTION. In a simple fraction, the top number (numerator) is smaller than the bottom number (denominator).

Circle the simple fractions below

45) $\frac{2}{5}$ $\frac{6}{5}$ $2\frac{3}{4}$ $\frac{3}{8}$ $\frac{25}{4}$ $\frac{35}{37}$

$\frac{33}{10}$ and $\frac{4}{4}$ are IMPROPER FRACTIONS. It is not proper for the numerator to be equal or larger than the denominator.

Circle the improper fractions below

46) $4\frac{1}{2}$ $\frac{9}{9}$ $\frac{7}{8}$ $\frac{8}{5}$ $2\frac{5}{7}$ $\frac{12}{9}$

47) MATCHING, us the correct number

a) $\frac{6}{9}$ _____

b) $2\frac{3}{4}$ _____

c) $\frac{17}{16}$ _____

d) $\frac{8}{8}$ _____

e) $47\frac{5}{9}$ _____

f) $\frac{34}{45}$ _____

1) Mixed Number

2) Simple or common fraction

3) Improper fraction

Name_____ Period_____ Date_____

**Objective: You will be able to simplify (reduce) fractions.**

REDUCE: means to divide the numerator and denominator by the same number

Example: $\frac{6}{10} =$ Think: What number divides into 6 and 10 evenly? _____

Divide by 2.

$\frac{6 \div 2}{10 \div 2} =$ _____

Example: $\frac{15}{21} =$ Think: What number divides into 15 and 21 evenly? _____

Divide by 3.

$\frac{15 \div 3}{21 \div 3} =$ _____

1) $\frac{2}{8} =$ Think: Divide by 2.

$\frac{2 \div}{8 \div} =$ _____

2) $\frac{12}{15} =$ Think: Divide by 3

$\frac{12 \div}{15 \div} =$ _____

3) $\frac{20}{25} =$ Think: Divide by 5

_____ = _____

Answers to fraction problems must be given in lowest terms. LOWEST TERMS means that there is no number (other than one) that will divide into both numerator and denominator evenly. In the problems above we divided by only one number to get to lowest terms. You may have to divide more than once to get to lowest terms.

$\frac{24}{36}$ (divided by 2) $\frac{24 \div 2}{36 \div 2} = \frac{12}{18}$ (divided by 2)

$\frac{12 \div 2}{18 \div 2} = \frac{6}{9}$ (divided by 3) $\frac{6 \div 3}{9 \div 3} = \frac{2}{3}$ is in lowest terms because no number other than one will divide into both numerator and denominator evenly.

If you had divided by the largest number possible (Greatest Common Factor) you would have saved time and effort in reducing this factor to lowest terms.

Example: $\frac{24}{36} = \frac{24 \div 12}{36 \div 12} = \frac{2}{3}$ so the Greatest Common Factor of 24 and 36 is 12.

The following methods will help you to reduce fractions to lowest terms. Remember if you divide by the largest possible number (Greatest Common Factor) you will only have to divide once.

METHOD I: Will numerator divide evenly into denominator? $\frac{17}{51}$

try it: $17\overline{)51}$ $\quad 3$ so $\frac{17 \div 17}{51 \div 17} = \frac{1}{3}$

1) $\frac{7}{21} =$ 2) $\frac{15}{45} =$ 3) $\frac{13}{26} =$

METHOD II: Use your divisibility rules to find a common factor of both the numerator and denominator. If you can't find a common factor, use a different method (factor tree).

Example a) $\frac{4}{10}$ (since both are even they are divisible by 2) $= \frac{4 \div 2}{10 \div 2} = \frac{2}{5}$

4) $\frac{6}{8} =$ 5) $\frac{10}{12} =$ 6) $\frac{14}{18} =$

Example b) $\frac{9}{15}$ (since the sum of digits is 3, 6 or 9 they are divisible by 3) $\frac{9 \div 3}{15 \div 3} = \frac{3}{5}$

7) $\frac{12}{15} =$ 8) $\frac{6}{9} =$ 9) $\frac{6}{21} =$

Example c) $\frac{30}{400}$ (since both end in zero, they are divisible by 10) $\frac{30 \div 10}{400 \div 10} =$ _____

10) $\frac{40}{70} =$ 11) $\frac{60}{110} =$ 12) $\frac{70}{200} =$

Did you notice that reducing by 10 is the same as dropping an equal number of zeros from both the numerator and denominator so

$\frac{300}{700} = \frac{3\cancel{00}}{7\cancel{00}} = \frac{3}{7}$

13) $\frac{150}{700} =$ 14) $\frac{1000}{5000} =$ 15) $\frac{300}{140,000} =$

METHOD III: If you can find the largest number possible (Greatest Common Factor) it will save you time in reducing to lowest terms.

Example a) $\frac{42}{48}$ Divide by the largest number you know will go into the numerator and denominator. Your multiplication facts will help you.

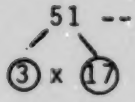
THINK: Divide by 6 since 42 = 6 x 7 and 48 = 6 x 8,

$\frac{42 \div 6}{48 \div 6} = \frac{7}{8}$

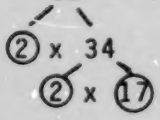
16) $\frac{24}{28} =$ 17) $\frac{21}{49} =$ 18) $\frac{56}{64} =$

METHOD IV: Prime factorization method will work for all fractions, but is best if you cannot reduce a fraction using one of the other methods, draw a factor tree and use the prime factorization method.
Remember your first prime numbers (2, 3, 5, 7, 11, 13, 17, 19)

Example: $\frac{51}{68}$




51 -----we know 51 is divisible by 3 because the sum of the digits 5 + 1 = 6




68 -----we know 68 is divisible by 2 because the last digit is even.

then 34 is divisible by 2 also

List the prime factors - $\frac{51}{68} = \frac{3 \times 17}{2 \times 2 \times 17} = \frac{3 \times \cancel{17}}{2 \times 2 \times \cancel{17}} = \frac{3}{4}$

19) $\frac{26}{39} =$ 20) $\frac{55}{77} =$ 21) $\frac{38}{57} =$

Prime Factorization Method (short cut) - Prime factor only the the numerator or denominator, whichever is easiest. Now check the other part of the fraction for divisibility by their prime factor.

Example: $\frac{51}{68}$ 51 ---because the sum of digits in 5 + 1 = 6 divisible by 3

$3 \times 17$

51 = 3 x 17, now will 3 divide evenly into 68? _____

so try 17.

$17\overline{)\,68}$ $\quad 4$ therefor, $\frac{51}{68} = \frac{3 \times 17}{4 \times 17} = \frac{3}{4}$

22) $\frac{57}{95}$ = 23) $\frac{39}{52}$ = 24) $\frac{85}{187}$ =

Simplify (Reduce)

25) $\frac{3}{6}$ = 26) $\frac{8}{12}$ = 27) $\frac{9}{24}$ =

28) $\frac{45}{75}$ = 29) $\frac{18}{72}$ = 30) $\frac{42}{49}$ =

31) $\frac{21}{27}$ = 32) $\frac{80}{100}$ = 33) $\frac{29}{87}$ =

34) $\frac{57}{60}$ = 35) $\frac{27}{45}$ = 36) $\frac{500}{700}$ =

37) $\frac{16}{24}$ = 38) $\frac{56}{168}$ = 39) $\frac{44}{77}$ =

40) $\frac{85}{100}$ = 41) $\frac{65}{78}$ = 42) $\frac{34}{51}$ =

LEVEL G CHECKPOINT 5 - 7 NAME _____

Introduction to Fractions PERIOD _____

DATE _____

1. What prime number(s) are even ? _____

2. Find the prime factorization. 16

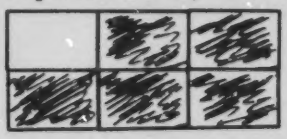
a. 28: _____ b. 100: _____

3. Write is exponential form.

a. 2 x 2 x 3 x 3 = _____ b. 3 x 4 x 4 x 4 = _____

(G - 5)

4. What fraction is represented by the shaded parts? _____



5. $\frac{3}{4}$ a. 3 is called the _____

b. 4 is called the _____

6. Choose the correct terms. Write number in blanks.

a. _____ $1\frac{2}{5}$

b. _____ $\frac{4}{4}$

c. _____ $\frac{2}{7}$

d. _____ $\frac{8}{7}$

e. _____ $4\frac{1}{3}$

1. Simple or Proper Fraction
2. Improper Fraction
3. Mixed Number

( G - 6)

7. Simplify these fractions. a. $\frac{3}{15}$ = _____ b. $\frac{6}{8}$ = _____

c. $\frac{300}{5000}$ = _____ d. $\frac{9}{21}$ = _____ e. $\frac{26}{65}$ = _____

f. $\frac{33}{121}$ = _____ g. $\frac{51}{510}$ = _____ h. $\frac{46}{69}$ = _____

( G - 7 )

LEVEL G CHECKPOINT - A 5 - 7

Introduction to Fractions

NAME _____

PERIOD _____

DATE _____

1. The smallest Prime number is _____.

2. Find the Prime Factorization.

a. 18: _____ b. 60: _____

3. Write in exponential form.

a. 4 x 4 x 5 = _____ b. 2 x 3 x 3 x 3 = _____

( G - 5 )

4. What fraction is represented by the shaded parts ? _____

5. $\frac{4}{5}$

a. 4 is called the _____

b. 5 is called the _____

6. Choose the correctterms. Write number in blanks.

a. _____ $\frac{3}{3}$

b. _____ $5\frac{1}{2}$

c. _____ $\frac{3}{5}$

d. _____ $\frac{4}{9}$

e. _____ $\frac{7}{5}$

1. Simple or Proper Fraction
2. Improper Fraction
3. Mixed Number

( G-6 )

7. Simplify these fractions.

a. $\frac{2}{10}$ = _____ b. $\frac{12}{42}$ = _____ c. $\frac{8}{20}$ = _____

d. $\frac{200}{5000}$ = _____ e. $\frac{39}{91}$ = _____ f. $\frac{72}{96}$ = _____

g. $\frac{35}{700}$ = _____ h. $\frac{65}{78}$ = _____

( G - 7 )

LEVEL G POST TEST

Introduction to Fractions

NAME _____

PERIOD _____

DATE _____

1. Circle the multiples of 3.

16, 13, 12, 18, 20, 3, 35, 36, 27, 56, 21

2. Write a common multiple of 6 and 4. _____

3. What is the least common multiple of 4 and 10 ? _____

( G - 1 )

4. A number is divisible by 2 if the _____ digit is ____, ____, ____, ____ or ____.

5. A number is divisible by 5 if the _____ digit is _____ or _____.

6. A number is divisible by 10 if the ____digit is _____.

7. An even number is divisible by _____.

( G - 2 )

8. If the single digit sum of the digits is _____, _____ or _____, the number is divisible by 3.

9. Circle the numbers below that are divisible by 3.

47, 54, 24, 18, 57, 59, 602, 711, 869, 415, 801

10. Write yes or no in each box

| divisible / Numbers | 7,695 | 400 | 102 | 1,230 | 6,834 |
|---|---|---|---|---|---|
| by 2 | | | | | |
| by 3 | | | | | |
| by 4 | | | | | |
| by 10 | | | | | |

( G - 3 )

11. In the problem 6 x 3 = 18, 6 and 3 are called _____ and 18 is called the _____.

12. List all the factors of 24. _____

13. List all the factors of 42. _____

14. A _____ number has more than two factors.

POST TEST G (cont.)

15. Circle the prime numbers: 2, 9, 21, 23, 51, 53, 63, 73

16. Write Prime or composite. a. 39 _____

b. 49 _____ c. 59 _____

( G - 4 )

17. The smallest prime number is _____.

Find the prime factorization.

18. a. 14 = _____ b. 32 = _____

c. 60 = _____ d. 45 = _____

Write in Exponetial form.

19. a. 3 x 3 x 3 = _____ b. 2 x 3 x 3 = _____

c. 4 x 4 x 5 x 5 x 5 = _____ d. 7 x 11 x 11 = _____

( G - 5 )

20. What fraction is represented by the shaded parts. _____

21. The bottom number of a fraction is called the _____.

22. Choose the correct terms. Write number in blanks.

a. _____ $\frac{2}{3}$

b. _____ $\frac{7}{5}$

c. _____ $\frac{1}{2}$

d. _____ $4\frac{1}{6}$

e. _____ $\frac{4}{4}$

1. Simple or Proper Fraction
2. Improper Fraction
3. Mixed Number

( G - 6 )

23. Simplify these Fractions. a. $\frac{4}{16}$ = _____ b. $\frac{9}{72}$ = _____

c. $\frac{8}{20}$ = _____ d. $\frac{60}{7000}$ = _____ e. $\frac{34}{51}$ = _____

f. $\frac{36}{96}$ = _____ g. $\frac{65}{104}$ = _____ h. $\frac{380}{570}$ = _____

( G - 7 )

# LEVEL REVIEW G

Name_____ Period____ Date_____

1. Write the first eight multiples.

   a. 3 : _____

   b. 8 : _____

   The least common multiple is _____.

(G-1)

2. Circle the numbers divisible by 2.

   51 168 1,363 450 98 8,673

3. A number is divisible by 5 if the _____ digit is ____ or _____.

(G-2)

4. 55,642

   Single digit sum of digits is _____.

   Is 55,642 divisible by 3? _____

(G-3)

5. List all factors of 36.

   _____

6. Write PRIME or COMPOSITE

   a. 39 _____ b. 51 _____ c. 61 _____

(G-4)

7. Find the prime factorization.

   a. 16 = _____

   b. 400 = _____

8. Write in exponential form.

   a. 2 x 3 x 3 = _____

   b. 4 x 4 x 4 = _____

(G-5)

9. Choose the correct terms. Write number on the line.

a. _____ $\frac{5}{5}$

b. _____ $\frac{2}{3}$

c. _____ $4\frac{1}{2}$

d. _____ $\frac{7}{6}$

e. _____ $\frac{1}{8}$

1) Simple or Proper fraction

2) Improper fraction

3) Mixed number

(G-6)

10. Simplify these fractions.

a. $\frac{20}{48}$ = _____ b. $\frac{60}{800}$ = _____ c. $\frac{57}{133}$ = _____

(G-7)

PRETEST LEVEL H

Multiplying and Dividing Fractions

NAME _____

PERIOD _____

DATE _____

Change these to a mixed number or a whole number.

1. $\frac{5}{3}$ = 2. $\frac{17}{8}$ = 3. $\frac{27}{9}$ = 4. $\frac{7}{7}$ =

Change these to improper fractions.

5. $1\frac{1}{2}$ = 6. $2\frac{3}{4}$ 7. 5 = 8. $10\frac{2}{5}$ =

( H - 1 )

Solve these problems. Simplify ( cancel ) before you multiply. You must show your work. Simplify ( reduce ) and circle your final answer.

9. $\frac{6}{7} \times \frac{1}{15}$ = 10. $\frac{1}{14} \times \frac{7}{8}$ = 11. $\frac{3}{5} \times \frac{10}{11} \times \frac{2}{9}$ =

( H - 2 )

12. $12 \times \frac{3}{4}$ = 13. $\frac{3}{4} \times 2$ =

14. $\frac{1}{2} \times 3 \times \frac{2}{3}$ = 15. $\frac{1}{10}$ of 7 =

( H - 3 )

16. $2\frac{2}{3} \times 1\frac{1}{8}$ = 17. $5 \times 1\frac{1}{4}$ = 18. $3\frac{1}{2} \times 2\frac{1}{5}$ =

19. $7\frac{1}{2} \times \frac{1}{4}$ = 20. $\frac{2}{3} \times 1\frac{3}{7}$ = 21. $3\frac{3}{4} \times 8$ =

PRETEST LEVEL H (cont.)

22. $\frac{3}{8} \times 1\frac{1}{3} \times 4 =$

23. $1\frac{1}{2} \times 2 \times 3\frac{1}{4} =$

( H - 4 )

24. $\frac{1}{4} \div \frac{2}{3} =$

25. $\frac{5}{12} \div \frac{4}{7} =$

26. $\frac{8}{15} \div \frac{4}{5} =$

( H - 5 )

27. $2\frac{1}{2} \div 1\frac{2}{3} =$

28. $3\frac{1}{3} \div 2 =$

29. $2\frac{1}{2} \div \frac{2}{5} =$

30. $8 \div \frac{2}{5} =$

31. $\frac{3}{5} \div 2\frac{2}{3} =$

32. $4\frac{2}{11} \div 4\frac{3}{5} =$

( H - 6 )

33. $\dfrac{\frac{1}{2}}{\frac{1}{3}} =$

34. $\dfrac{4}{3\frac{1}{3}} =$

35. $\dfrac{8\frac{1}{5}}{7} =$

36. $\dfrac{3\frac{3}{5}}{\frac{8}{9}} =$

37. $\dfrac{6\frac{1}{2}}{7\frac{3}{8}} =$

( H - 7 )

# MULTIPLYING & DIVIDING FRACTIONS H - 1

Name_____ Period_____ Date_____

| Objective: | You will be able to change improper fractions to mixed numbers and whole numbers; and change whole numbers and mixed numbers to improper fractions. |
|---|---|

Improper Fractions - The numerator is larger than or equal to the denominator.

$\frac{15}{2}$ = the numerator is larger than the denominator

$\frac{7}{7}$ = the numerator is equal to the denominator

Here is a way to change improper fractions to mixed numbers and whole numbers.

DIVIDE THE DENOMINATOR → $2\overline{)15}$ ← INTO THE NUMERATOR

$7$
$14$
$1$

WRITE YOUR ANSWER AS A MIXED NUMBER

the whole number you got by dividing → $7\frac{1}{2}$ ← Numerator is the remainder from your division

Denominator is the same as the improper fraction

DIVIDE THE DENOMINATOR → $7\overline{)7}$ ← INTO THE NUMERATOR

$1$

WRITE YOUR ANSWER AS THE WHOLE NUMBER YOU GOT BY DIVIDING

ANSWER: 1

Now change these improper fractions to mixed numbers and whole numbers.

1) $\frac{19}{3} = 6\frac{1}{3}$ 2) $\frac{18}{6} =$ 3) $\frac{4}{3} =$ 4) $\frac{11}{6} =$

5) $\frac{28}{7} =$ 6) $\frac{5}{4} =$ 7) $\frac{17}{3} =$ 8) $\frac{16}{9} =$

9) $\frac{12}{4} =$ 10) $\frac{81}{50} =$ 11) $\frac{15}{8} =$ 12) $\frac{27}{25} =$

13) $\frac{24}{7} =$ 14) $\frac{23}{8} =$ 15) $\frac{11}{2} =$ 16) $\frac{56}{8} =$

H-1 (cont)

Follow these steps to change a mixed number to an improper fraction.

EXAMPLE: $2\frac{3}{4}$

Step 1. Multiply the denominator times the whole number

$2_{x}\frac{3}{4}$ $\qquad 2 \times 4 = 8$

Step 2. Add the product of Step 1 to the numerator of the fraction.

$2\frac{3}{4}$ $\qquad$ 1) $2 \times 4 = 8$ $\qquad$ 2) $8 + 3 = 11$

Step 3. Write the new numerator over the original denominator

$2\frac{3}{4}$ $\qquad$ 1) $2 \times 4 = 8$ $\qquad$ 2) $8 + 3 = 11$ $\qquad$ 3) $\frac{11}{4}$

so: $2\frac{3}{4} = \frac{11}{4}$

EXAMPLE: $3\frac{2}{5}$ $\qquad$ Step 1) $3 \times 5 = 15$, $\qquad$ Step 2) $15 + 2 = 17$,

Step 3) $\frac{17}{5}$, $\qquad$ so $3\frac{2}{5} = \frac{17}{5}$

Change these mixed numbers to improper fractions:

17) $6\frac{1}{3} = \frac{19}{3}$ $\qquad$ $(6 \times 3 + 1 = 6 \times 3 + 1)$

18) $4\frac{2}{7} =$

19) $11\frac{1}{2} =$

20) $6\frac{7}{8} =$

21) $12\frac{1}{4} =$

22) $1\frac{99}{100} =$

23) $8\frac{4}{5} =$

24) $5\frac{3}{4} =$

25) $3\frac{7}{11} =$

26) $7\frac{4}{9} =$

27) $13\frac{4}{5} =$

28) $9\frac{3}{8} =$

To change a <u>whole number</u> to an improper fraction just put a 1 as the denominator.

EXAMPLE: a) $4 = \frac{4}{1}$ $\qquad$ b) $6 = \frac{6}{1}$

Now change these numbers to improper fractions:

29) $7 =$

30) $1 =$

31) $102 =$

# MULTIPLYING AND DIVIDING FRACTIONS H - 2

Name_____ Period_____ Date_____

| Objective: You will be able to multiply proper fractions and simplify. |
|---|

Follow these steps to multiply fractions:

Step 1)) Multiply numerator times numerator

Step 2) Multiply denominator times denominator

EXAMPLE: $\frac{2}{3} \times \frac{1}{5} = \frac{2 \times 1}{3 \times 5} = \frac{2}{15}$

1) $\frac{2}{3} \times \frac{5}{7} =$

2) $\frac{1}{2} \times \frac{3}{5} =$

3) $\frac{4}{5} \times \frac{2}{7} =$

4) $\frac{3}{4} \times \frac{1}{5} =$

5) $\frac{5}{8} \times \frac{1}{8} =$

6) $\frac{5}{7} \times \frac{3}{4} =$

7) $\frac{5}{7} \times \frac{1}{2} \times \frac{1}{3} =$

8) $\frac{1}{2} \times \frac{3}{5} \times \frac{3}{7} =$

## SIMPLIFYING and MULTIPLYING

You can save work in some multiplication problems if you simplify before you multiply.

Here's how to simplify before you multiply:

**Step 1**

Find on numerator and one denominator with a common factor.

$\frac{1}{9} \times \frac{\cancel{3}}{4} =$

3 is A COMMON FACTOR

**Step 2**

Divide these numbers by their common factor.

$\frac{1}{\cancel{9}_{3}} \times \frac{\cancel{3}^{1}}{4}$ ← (3 into 3 = 1)

3 ↰ (3 into 9 = 3)

**Step 3**

MULTIPLY

$\frac{1}{\cancel{9}_{3}} \times \frac{\cancel{3}^{1}}{4} = \frac{1}{12}$

9) $\frac{4}{7} \times \frac{1}{4} =$

10) $\frac{1}{6} \times \frac{2}{\cancel{3}7} =$

11) $\frac{5}{6} \times \frac{7}{15} =$

12) $\frac{2}{3} \times \frac{3}{5} =$

13) $\frac{8}{9} \times \frac{1}{4} =$

14) $\frac{3}{4} \times \frac{1}{3} =$

15) $\frac{5}{8} \times \frac{3}{10} =$

16) $\frac{1}{2} \times \frac{8}{9} =$

17) $\frac{3}{5} \times \frac{10}{11} =$

18) $\frac{9}{11} \times \frac{5}{6} =$

19) $\frac{2}{5} \times \frac{3}{4} =$

20) $\frac{11}{12} \times \frac{7}{11} =$

21) $\frac{\overset{1}{\cancel{3}}}{\underset{1}{\cancel{5}}} \times \frac{\overset{1}{\cancel{5}}}{\underset{4}{\cancel{12}}} = \frac{1}{4}$

SOME TIMES YOU CAN SIMPLIFY MORE THAN ONE PAIR OF NUMBERS

22) $\frac{3}{10} \times \frac{2}{3} =$

23) $\frac{6}{7} \times \frac{7}{15} =$

24) $\frac{5}{6} \times \frac{9}{10} =$

25) $\frac{3}{5} \times \frac{10}{11} \times \frac{2}{9} =$

26) $\frac{5}{12} \times \frac{12}{5} =$

27) $\frac{3}{14} \times \frac{7}{12} =$

28) $\frac{5}{12} \times \frac{24}{25} =$

29) $\frac{4}{5} \times \frac{15}{16} =$

30) $\frac{7}{8} \times \frac{16}{21} =$

31) $\frac{3}{8} \times \frac{2}{9} =$

Name_____ Period_____ Date_____

Objective: You will be able to multiply a proper fraction by a whole number.

Rename the fractions below as whole numbers.

1) $\frac{5}{1} = 5$ 2) $\frac{6}{1} =$ 3) $\frac{3}{1} =$ 4) $\frac{10}{1} =$

That was easy! Do the problems above in reverse and you will have a way to rename whole numbers as fractions.

5) $5 = \frac{5}{1}$ 6) $6 =$ 7) $3 =$ 8) $10 =$

Rename each whole number as a fraction.

9) $8 =$ 10) $12 =$ 11) $15 =$ 12) $33 =$

To multiply a fraction and a whole number, rename the whole number as a fraction. Then multiply the numerators together and multiply the denominators together.

EXAMPLE: $\frac{1}{5} \times 4 =$

Step 1: $\frac{1}{5} \times 4 = \frac{1}{5} \times \frac{4}{1}$
Rewrite the problem renaming the whole number as a fraction

Step 2: $\frac{1}{5} \times 4 = \frac{1}{5} \times \frac{4}{1} = \frac{4}{5}$
Multiply the numerators together. Multiply the denominators together.

MULTIPLY:

13) $2 \times \frac{1}{3} =$ 14) $\frac{1}{8} \times 5 =$ 15) $\frac{2}{11} \times 5 =$

16) $4 \times \frac{2}{9} =$ 17) $6 \times \frac{1}{7} =$ 18) $\frac{2}{5} \times 2 =$

Often when you multiply a fraction and a whole number you will have to rename your answer as a mixed or whole number.

Multiply. Rename your answer as a mixed or whole number when possible. Simplify your answer when possible.

19) $\frac{1}{2} \times 7 = \frac{1}{2} \times \frac{7}{1} = \frac{7}{2} = 3\frac{1}{2}$

20) $\frac{2}{5} \times 8 =$

21) $\frac{3}{5} \times 4 =$

22) $8 \times \frac{1}{2} =$

23) $\frac{1}{8} \times 10 =$

The problems will be easier if you can simplify before you multiply.

24) $\frac{1}{4} \times 6 = \frac{1}{\cancel{4}_{2}} \times \frac{\overset{3}{\cancel{6}}}{1} = \frac{3}{2} = 1\frac{1}{2}$

25) $\frac{3}{4} \times 8 =$

26) $\frac{3}{8} \times 2 =$

27) $12 \times \frac{1}{3} =$

28) $8 \times \frac{5}{8} =$

29) $4 \times \frac{5}{6} =$

30) $\frac{1}{9} \times 12 =$

31) $\frac{2}{5} \times 10 =$

In many multiplication problems the word "of" replaces the "X" sign.

32) $\frac{3}{4}$ of $9 =$

33) $\frac{1}{2}$ of $10 =$

34) $\frac{1}{3}$ of $12 =$

35) $\frac{2}{5}$ of $7 =$

Name_____ Period_____ Date_____

| Objective: You will be able to multiply fractions, whole numbers and mixed numerals. |
|---|

To multiply fractions, follow these steps.

1) Change all whole numbers and mixed numerals to improper fractions.

2) Simplify: Divide out common factors between the numerators and denominators.

3) Multiply numerators together then denominators together

4) Change improper fractions to mixed numerals or whole numbers

Examples

A) $\frac{3}{4} \times \frac{2}{5}$

| STEP 2 | STEP 3 |
|---|---|
| $\frac{3}{\cancel{4}_{2}} \times \frac{\cancel{2}^{1}}{5}$ | $= \frac{3 \times 1}{2 \times 5} = \frac{3}{10}$ |

B) $4\frac{1}{2} \times 5$

| STEP 1 | STEP 3 | STEP 4 |
|---|---|---|
| $\frac{9}{2} \times \frac{5}{1}$ | $= \frac{9 \times 5}{2 \times 1} = \frac{45}{2}$ | $= 22\frac{1}{2}$ |

Multiply. Simplify when possible.

1) $\frac{3}{10} \times 3\frac{1}{4} =$

2) $1\frac{4}{7} \times \frac{2}{5} =$

3) $\frac{2}{3} \times 1\frac{3}{7} =$

4) $2\frac{1}{4} \times \frac{3}{8} =$

5) $3 \times \frac{1}{5} =$

6) $2\frac{1}{4} \times 5 =$

7) $\frac{1}{8} \times 4 =$

8) $\frac{2}{3} \times \frac{1}{2} =$

9) $1\frac{5}{6} \times \frac{1}{5} =$

10) $1\frac{1}{3} \times \frac{4}{5} =$

11) $\frac{4}{9} \times 1\frac{1}{2} =$

12) $\frac{12}{13} \times \frac{5}{6} =$

13) $\frac{5}{16} \times \frac{4}{25} =$

14) $\frac{5}{8} \times 1\frac{1}{5} =$

15) $2\frac{1}{2} \times 3\frac{1}{4} =$

16) $2\frac{1}{3} \times 3\frac{2}{3} =$

17) $3\frac{1}{8} \times 1\frac{3}{5} =$

18) $1\frac{1}{2} \times 3\frac{1}{4} =$

19) $\frac{3}{8} \times 8 =$

20) $16 \times \frac{1}{3} \times \frac{3}{8} =$

21) $1\frac{1}{2} \times 1\frac{1}{3} \times 1\frac{1}{4} =$

22) $5 \times 1\frac{1}{4} =$

LEVEL H CHECKPOINT 1 - 4

Multiplying and Dividing Fractions

NAME _____

PERIOD _____

DATE _____

Change these to a mixed number or a whole number.

1.a. $\frac{4}{3} =$ b. $\frac{9}{4} =$ c. $\frac{36}{36} =$

Change these to improper fractions

2. a. $3\frac{2}{11} =$ b. $3 =$ c. $5\frac{3}{5} =$

( H - 1 )

Solve these problems . Simplify ( cancel ) before you multiply. You must show your work. Simplify ( reduce ) and circle your final answer.

3. $\frac{3}{5} \times \frac{1}{3} =$

4. $\frac{3}{10} \times \frac{1}{2} \times \frac{5}{6} =$

( H - 2 )

5. $3 \times \frac{1}{5}$

6. $\frac{2}{3} \times \frac{3}{5} \times 6 =$

( H - 3 )

7. $1\frac{2}{3} \times 2\frac{3}{5} =$

8. $3 \times 1\frac{1}{5} =$

9. $\frac{4}{7} \times 3\frac{1}{2} =$

10. $1\frac{13}{15} \times 1\frac{1}{2} \times \frac{3}{4} =$



( H - 4 )

LEVEL H CHECKPOINT - A 1 - 4

Multiplying and Dividing Fractions

NAME _____

PERIOD _____

DATE _____

Change these to a mixed or a whole number.

1. a. $\frac{6}{5} =$ b. $11\frac{3}{7} =$ c. $\frac{9}{9} =$

Change these to improper fractions

2. a. $6\frac{1}{5} =$ b. $5 =$ c. $3\frac{7}{9} =$

( H - 1 )

Solve these problems. Simplify ( cancel ) before you multiply. You musy show your work. Simplify ( reduce ) and circle your final answer.

3. $\frac{2}{5} \times \frac{1}{2} =$

4. $\frac{5}{6} \times \frac{1}{8} \times \frac{9}{10} =$

( H - 2)

5. $5 \times \frac{3}{10} =$

6. $\frac{1}{2} \times 3 \times \frac{4}{5} =$

( H - 3 )

7. $1\frac{1}{2} \times 2\frac{3}{4} =$

8. $40 \times 2\frac{1}{2} =$

9. $\frac{3}{4} \times 8\frac{1}{6} =$

10. $2\frac{1}{2} \times 3\frac{7}{9} \times \frac{4}{5} =$

( H - 4 )

Name_____ Period_____ Date_____

Objective: You will be able to divide simple fractions.

Division of fractions is very similar to multiplication of fractions. The single difference is finding the :reciprocal" of the divisor.

Reciprocal means to turn the fraction upside down.

| Fraction | Reciprocal |
|---|---|
| $\frac{2}{3}$ | $\frac{3}{2}$ |
| $4 = \frac{4}{1}$ | $\frac{1}{4}$ |
| $2\frac{1}{3} = \frac{7}{3}$ | $\frac{3}{7}$ |

FIND THE RECIPROCAL

1) $5 =$

2) $3\frac{2}{5} =$

3) $\frac{1}{2} =$

4) $5\frac{2}{7} =$

To divide by a fraction, rewrite the problem as multiplication by the fraction's reciprocal. Then multiply. Here are the steps:

1) Copy the first fraction.
2) Change division to multiplication
3) Change the second fraction to its reciprocal
4) Multiply

Don't simplify until you have rewritten the problem as multiplication.

5) $\frac{1}{4} \div \frac{6}{7} = \frac{1}{4} \times \frac{7}{6} = \frac{7}{24}$

6) $\frac{2}{3} \div \frac{5}{7} =$

7) $\frac{3}{5} \div \frac{1}{3} =$

8) $\frac{4}{9} \div \frac{7}{8} =$

9) $\frac{1}{8} \div \frac{3}{4} =$

10) $\frac{4}{5} \div \frac{7}{8} =$

After you rewrite the division problems below, simplify and then multiply.

11) $\frac{1}{4} \div \frac{3}{8} = \frac{1}{\cancel{4}_{1}} \times \frac{\overset{2}{\cancel{8}}}{3} = \frac{2}{3}$

12) $\frac{2}{3} \div \frac{5}{6} =$

13) $\frac{1}{6} \div \frac{7}{12} =$

14) $\frac{4}{7} \div \frac{2}{3} =$

15) $\frac{5}{14} \div \frac{5}{7} =$

16) $\frac{1}{3} \div \frac{7}{12} =$

17) $\frac{1}{10} \div \frac{4}{5} =$

18) $\frac{7}{11} \div \frac{7}{8} =$

19) $\frac{3}{8} \div \frac{5}{12} =$

20) $\frac{1}{8} \div \frac{3}{4} =$

Divide. Express your answer in simplest form.

21) $\frac{2}{3} \div \frac{4}{5} =$

22) $\frac{1}{3} \div \frac{1}{2} =$

23) $\frac{2}{9} \div \frac{5}{12} =$

24) $\frac{3}{4} \div \frac{3}{4} =$

25) $\frac{1}{10} \div \frac{1}{5} =$

26) $\frac{7}{8} \div \frac{11}{12} =$

# MULTIPLYING AND DIVIDING FRACTIONS H - 6

Name_____ Period_____ Date_____

| Objective: You will be able to divide fractions, mixed numbers and whole numbers. |
|---|

Follow these steps to divide fractions:

1) Change all whole numbers and mixed numerals to improper fractions.
2) Change the $\div$ sign to x (multiplication) and take the reciprocal of the divisor. (the second fraction turn upside down)
3) Simplify by dividing common factors of the numerators and denominators.
4) Multiply numerators together and multiply denominators together.
5) Change improper fractions to mixed numerals or whole numbers.
6) Simplify fractions to lowest terms. (If you did step 3 correctly there is no need to simplify.)

Divide, reduce if possible.

1) $\frac{1}{3} \div \frac{1}{2} =$

2) $\frac{3}{8} \div \frac{3}{4} =$

3) $\frac{1}{4} \div \frac{1}{2} =$

4) $\frac{3}{5} \div \frac{2}{3} =$

5) $3 \div \frac{1}{2} =$

6) $4 \div \frac{4}{5} =$

7) $2\frac{2}{5} \div 4 =$

8) $3\frac{1}{3} \div 2 =$

9) $2\frac{1}{3} \div 1\frac{1}{8} =$

10) $5\frac{2}{3} \div 2\frac{1}{4} =$

11) $3\frac{2}{5} \div 2\frac{1}{3} =$

12) $1\frac{3}{4} \div \frac{3}{8} =$

13) $2\frac{1}{2} \div \frac{2}{5} =$

14) $3\frac{1}{4} \div \frac{3}{7} =$

15) $1\frac{1}{2} \div 2 =$

16) $2\frac{2}{5} \div 1\frac{1}{2} =$

17) $3\frac{1}{2} \div 10\frac{1}{2} =$

18) $9\frac{7}{10} \div \frac{1}{5} =$

19) $6 \div 5 =$

20) $4\frac{2}{11} \div 4\frac{3}{5} =$

Name_____ Period_____ Date_____

**Objective: Simplify complex fractions.**

A sentence like $\frac{2}{3} \div \frac{3}{8}$ can also be written this way: $\dfrac{\frac{2}{3}}{\frac{3}{8}}$

When you write it like $\dfrac{\frac{2}{3}}{\frac{3}{8}}$ it is called a <u>complex fraction.</u>

and it means $\frac{2}{3} \div \frac{3}{8}$.

1) $5 \div \frac{2}{3}$ can be written as $\dfrac{5}{\frac{1}{-}}$

2) $1\frac{1}{2} \div \frac{1}{2}$ can be written as $\dfrac{\frac{3}{}}{\frac{1}{2}}$

3) $\dfrac{\frac{2}{3}}{\frac{3}{8}}, \dfrac{\frac{5}{1}}{\frac{2}{3}}, \dfrac{\frac{3}{2}}{\frac{1}{2}}$ are called _____fractions.

a) Another way of showing _____of fractions is by using complex fractions.

b) b) $\dfrac{\frac{1}{2}}{\frac{2}{3}}$ asks you to divide _____by_____. Written as a sentence it would look like this: _____ $\div$ _____ = _____

Write these complex fractions as regular division of fraction problems. You do not need to find the answers.

4) $\dfrac{\frac{3}{5}}{\frac{4}{5}} = \_\_ \div \_\_$

5) $\dfrac{\frac{7}{8}}{\frac{2}{3}} =$

6) $\dfrac{\frac{5}{8}}{\frac{1}{4}} =$

7) $\dfrac{\frac{9}{10}}{\frac{4}{5}} =$

H-7 (cont)
Find the answers to these division problems.

8) $\dfrac{\frac{7}{8}}{\frac{1}{5}} =$

9) $\dfrac{\frac{3}{8}}{\frac{1}{2}} =$

10) $\dfrac{\frac{2}{3}}{\frac{3}{4}} =$

11) $\dfrac{\frac{3}{5}}{\frac{2}{3}} =$

12) $\dfrac{\frac{4}{5}}{\frac{1}{4}} =$

13) $\dfrac{\frac{3}{5}}{\frac{3}{5}} =$

Some complex fractions contain whole numbers and/or mixed numbers.
You will have more success if you rewrite them before working.

14) $\dfrac{3\frac{1}{2}}{\frac{2}{3}} = 3\frac{1}{2} \div \frac{2}{3} = \frac{7}{2} \div \frac{2}{3} = \frac{7}{2} \times \frac{3}{2} = \frac{21}{4} = 5\frac{1}{4}$

15) $\dfrac{4\frac{1}{3}}{5\frac{3}{4}} =$

16) $\dfrac{5\frac{1}{2}}{5} =$

17) $\dfrac{6\frac{1}{2}}{7\frac{3}{8}} =$

18) $\dfrac{2\frac{1}{5}}{3\frac{3}{4}} =$

19) $\dfrac{8}{2\frac{1}{2}} =$

20) $\dfrac{3\frac{1}{6}}{4}$

LEVEL H CHECKPOINT 5 - 7

Multiplying and Dividing Fractions

NAME _____

PERIOD _____

DATE _____

Solve these problems. You must show your work. Simplify and circle your final answer.

1. $\frac{2}{5} \div \frac{1}{2} =$

2. $\frac{3}{4} \div \frac{4}{5} =$

( H - 5 )

3. $1\frac{7}{8} \div 2\frac{2}{5} =$

4. $3\frac{1}{3} \div 5 =$

5. $3\frac{3}{5} \div \frac{4}{9} =$

6. $\frac{1}{3} \div 4\frac{2}{3} =$

( H - 6 )

7. $\dfrac{\frac{3}{4}}{\frac{5}{6}} =$

8. $\dfrac{66\frac{2}{3}}{100} =$

9. $\dfrac{5\frac{3}{5}}{2\frac{1}{3}} =$

10. $\dfrac{15}{6\frac{2}{5}} =$

( H - 7 )

LEVEL H CHECKPOINT - A 5 - 7

Multiplying and Dividing Fractions

NAME _____

PERIOD _____

DATE _____

Solve these problems. You must show your work. Simplify and circle your final answer.

1. $\frac{1}{3} \div \frac{3}{4} =$

2. $\frac{2}{3} \div \frac{1}{4} =$

( H - 5 )

3. $1\frac{2}{3} \div 2\frac{1}{2} =$

4. $6\frac{7}{8} \div 5 =$

5. $1\frac{2}{5} \div \frac{2}{3} =$

6. $\frac{5}{7} \div 2\frac{1}{3} =$

( H - 6 )

7. $\dfrac{\frac{2}{3}}{\frac{5}{6}} =$

8. $\dfrac{8}{3\frac{1}{5}} =$

9. $\dfrac{6\frac{1}{2}}{3} =$

10. $\dfrac{3\frac{1}{4}}{2\frac{1}{6}} =$

( H - 7 )

POST TEST LEVEL H

NAME _____

Multiplying and Dividing Fractions

PERIOD _____

DATE _____

Change these to a mixed number or a whole number.

1. $\frac{15}{8}$ =  2. $\frac{15}{15}$ =  3. $\frac{18}{3}$  4. $\frac{11}{4}$ =

Change these to improper fractions.

5. $9$ =  6. $2\frac{3}{5}$ =  7. $1\frac{7}{8}$ =  8. $10\frac{2}{3}$ =

( H - 1 )

Solve these problems. Simplify ( cancel ) before you multiply. You must show your work. Simplify ( reduce ) and circle your final answer.

9. $\frac{5}{8} \times \frac{1}{8}$ =  10. $\frac{4}{5} \times \frac{5}{8}$ =  11. $\frac{7}{8} \times \frac{1}{2} \times \frac{6}{7}$ =

( H - 2 )

12. $\frac{2}{5} \times 2$ =  13. $4 \times \frac{2}{9}$ =

14. $\frac{1}{7}$ of $2$ =  15. $\frac{1}{5} \times 7 \times \frac{5}{14}$ =

( H - 3 )

16. $2\frac{3}{4} \times 3\frac{1}{3}$ =  17. $4 \times 3\frac{1}{2}$ =  18. $\frac{5}{8} \times 7\frac{1}{5}$ =

19. $3\frac{1}{3} \times 5$ =  20. $3\frac{1}{7} \times 5\frac{1}{4}$ =  21. $5\frac{3}{5} \times \frac{7}{8}$ =

POST TEST LEVEL H (cont.)

22. $1\frac{2}{3} \times 1\frac{7}{8} \times 1\frac{3}{5} =$

23. $3\frac{5}{6} \times 4 \times 2\frac{1}{4} =$

( H - 4)

24. $\frac{3}{8} \div \frac{2}{3} =$

25. $\frac{3}{4} \div \frac{3}{5} =$

26. $\frac{1}{8} \div \frac{5}{8} =$

( H - 5)

27. $5\frac{1}{2} \div 3\frac{2}{3} =$

28. $3\frac{5}{8} \div 2 =$

29. $2\frac{1}{4} \div \frac{3}{8} =$

30. $4 \div \frac{8}{11} =$

31. $\frac{3}{5} \div 2\frac{1}{6} =$

32. $7\frac{1}{2} \div 5\frac{5}{6} =$

( H- 6 )

33. $\dfrac{\frac{7}{10}}{\frac{6}{7}} =$

34. $\dfrac{7}{1\frac{1}{3}} =$

35. $\dfrac{4\frac{3}{4}}{3} =$

36. $\dfrac{1\frac{5}{6}}{\frac{11}{12}} =$

37. $\dfrac{6\frac{3}{5}}{2\frac{3}{4}} =$



( H - 7 )

LEVEL REVIEW H

Multiplying and Dividing Fractions

Name_____Period_____Date_____

Change these to a mixed number or to a whole number.

1) a) $\frac{9}{7}$ = b) $\frac{24}{6}$ = c) $\frac{11}{11}$ =

Change these to improper fractions.

2) a) $6\frac{1}{5}$ = b) $8$ = c) $3\frac{7}{9}$

(H-1)

Solve these problems. Simplify before you multiply. You must show your work. Circle your final answer.

3) a) $\frac{4}{5} \times \frac{8}{9}$ = b) $\frac{20}{49} \times \frac{21}{25}$ =

(H-2)

4) a) $\frac{1}{3}$ of $8$ = b) $8 \times \frac{5}{6}$ = c) $\frac{1}{10} \times \frac{14}{15} \times 9$ =

(H-3)

5) a) $1\frac{1}{2} \times 2\frac{3}{4}$ = b) $2\frac{1}{2} \times 3 \times \frac{4}{5}$ = c) $4 \times \frac{3}{5} \times 2\frac{1}{2}$ =

(H-4)

6) a) $\frac{5}{6} \div \frac{2}{5} =$ b) $\frac{6}{7} \div \frac{7}{8} =$

(H-5)

7) a) $6 \div \frac{3}{5} =$ b) $4\frac{2}{3} \div 5\frac{1}{6} =$

8) a) $\frac{2}{5} \div 1\frac{2}{5} =$ b) $1\frac{1}{8} \div \frac{3}{4} =$

(H-6)

9) a) $\frac{2\frac{1}{3}}{\frac{5}{7}} =$ b) $\frac{4}{2\frac{1}{2}} =$

10) a) $\frac{4\frac{3}{4}}{2\frac{5}{7}} =$ b) $\frac{\frac{5}{8}}{10} =$

(H-7)

LEVEL HA PRE TEST

Adding and Subtracting Fractions

NAME_____

Period_____

Date_____

Add or subtract,

1) $\begin{array}{r} \frac{8}{17} \\ +\frac{3}{17} \\ \hline \end{array}$

2) $\begin{array}{r} \frac{9}{11} \\ -\frac{7}{11} \\ \hline \end{array}$

3) $\begin{array}{r} \frac{2}{5} \\ +\frac{1}{5} \\ \hline \end{array}$

4) $\frac{10}{49} - \frac{6}{49} =$

(HA-1)

5) $\begin{array}{r} 7\frac{1}{5} \\ +2\frac{2}{5} \\ \hline \end{array}$

6) $\begin{array}{r} 3\frac{5}{7} \\ -\frac{1}{7} \\ \hline \end{array}$

7) $7\frac{2}{5} - 7 =$

8) $8 + 2\frac{3}{8} =$

(HA-2)

Add or subtract, simplify (reduce and change to proper fractions)

9) $\begin{array}{r} 5\frac{6}{7} \\ +3\frac{3}{7} \\ \hline \end{array}$

10) $\begin{array}{r} 7\frac{7}{9} \\ -\frac{4}{9} \\ \hline \end{array}$

11) $7\frac{3}{7} + 2\frac{4}{7} =$

12) $8\frac{5}{8} - 8\frac{3}{8} =$

(HA-3)

Find the Lowest Common Denominator:

13) $\frac{3}{4}, \frac{1}{9}$ L.C.D. =

14) $\frac{3}{14}, \frac{3}{7}$ L.C.D. =

15) $\frac{5}{8}, \frac{1}{6}$ L.C.D. =

Fill in the blanks:

16) $\frac{1}{4} = \frac{\quad}{12}$

17) $\frac{5}{6} = \frac{\quad}{30}$

(HA-4)

HA Pretest (cont)

Add, simplify answers, show work!

18) $\frac{5}{7} + \frac{7}{8}$

19) $3\frac{5}{6} + \frac{2}{3}$

20) $7\frac{5}{8} + 2\frac{5}{6}$

21) $7\frac{2}{9} + 4\frac{5}{6}$

(HA-5)

Subtract, simplify (reduce and change to proper fractions)
Show work!

22) $7 - \frac{3}{4}$

23) $4\frac{3}{8} - 3$

24) $9\frac{1}{4} - 7\frac{2}{3}$

25) $10\frac{5}{8} - 6\frac{39}{40}$

26) $8\frac{2}{3} - 1\frac{9}{10}$

(HA-6)

# ADDING AND SUBTRACTING FRACTIONS HA - 1

Name_____ Period_____ Date_____

Objective: Add and subtract fractions with common denominators

If fractions have the same denominator they have a common denominator. It is easy to add and subtract fractions with a common denominator.

Put a loop around each problem below where the fractions have a common denominator.

$\frac{2}{3} + \frac{5}{9}$ $\quad$ $\frac{1}{3} + \frac{2}{3}$ $\quad$ $\frac{7}{9} - \frac{1}{2}$ $\quad$ $\frac{1}{5} + \frac{3}{5}$

$\frac{1}{4} + \frac{3}{5}$ $\quad$ $\frac{4}{7} + \frac{1}{7} + \frac{5}{7}$ $\quad$ $\frac{16}{17} + \frac{1}{17}$

$\frac{11}{12} - \frac{7}{12}$ $\quad$ $\frac{2}{3} - \frac{1}{3}$ $\quad$ $\frac{11}{12} - \frac{7}{9}$

$\frac{3}{5} + \frac{4}{5}$ $\quad$ $\frac{6}{7} - \frac{2}{7}$

When you add or subtract fractions with a common denominator, you add or subtract the numerators and keep the common denominator in your answer.

$\frac{2}{5} + \frac{1}{5} = \frac{2+1}{5} = \frac{3}{5}$ ← add numerators
← keep the common denominator

$\frac{2}{5} - \frac{1}{5} = \frac{2-1}{5} = \frac{1}{5}$ ← subtract numerators
← keep the common denominator

Add or subtract:

1) $\frac{2}{5} + \frac{1}{5} =$

2) $\frac{7}{9} - \frac{5}{9} =$

3) $\frac{5}{9} + \frac{2}{9} =$

4) $\frac{7}{11} - \frac{4}{11} =$

5) $\frac{5}{21} + \frac{8}{21} =$

6) $\frac{10}{21} - \frac{8}{21} =$

7) $\frac{6}{7} - \frac{2}{7} =$

8) $\frac{1}{9} + \frac{4}{9} =$

9) $\frac{2}{13} + \frac{7}{13} + \frac{1}{13} =$

10) $\frac{3}{11} - \frac{2}{11} =$

11) $\frac{5}{17} + \frac{6}{17} =$

12) $\frac{7}{51} + \frac{28}{51} =$

HA-1 (cont)

Addition and subtraction problems can be written in two ways.

$\frac{4}{7} + \frac{2}{7} = \frac{6}{7}$ $\quad \begin{array}{r} \frac{4}{7} \\ +\frac{2}{7} \\ \hline \frac{6}{7} \end{array}$ $\quad \frac{4}{7} - \frac{2}{7} = \frac{2}{7}$ $\quad \begin{array}{r} \frac{4}{7} \\ -\frac{2}{7} \\ \hline \frac{2}{7} \end{array}$

Add or subtract

13) $\begin{array}{r} \frac{1}{7} \\ +\frac{5}{7} \\ \hline \end{array}$ $\quad$ 14) $\begin{array}{r} \frac{9}{13} \\ -\frac{5}{13} \\ \hline \end{array}$ $\quad$ 15) $\begin{array}{r} \frac{2}{11} \\ +\frac{6}{11} \\ \hline \end{array}$ $\quad$ 16) $\frac{4}{17} + \frac{3}{17} + \frac{2}{17} =$

17) $\frac{10}{11} - \frac{9}{11} =$

18) $\begin{array}{r} \frac{9}{13} \\ -\frac{4}{13} \\ \hline \end{array}$ $\quad$ 19) $\begin{array}{r} \frac{1}{5} \\ +\frac{3}{5} \\ \hline \end{array}$ $\quad$ 20) $\begin{array}{r} \frac{3}{7} \\ -\frac{1}{7} \\ \hline \end{array}$ $\quad$ 21) $\frac{15}{19} - \frac{7}{19} =$

22) $\frac{1}{13} + \frac{2}{13} + \frac{3}{13} =$

After you add or subtract fractions, always check to see if you can simplify your answer.

$\frac{1}{4} + \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$ $\qquad$ $\frac{7}{8} - \frac{1}{8} = \frac{6}{8} = \frac{3}{4}$

Add or subtract. Simplify each answer.

23) $\frac{1}{6} + \frac{1}{6} =$ $\quad$ 24) $\begin{array}{r} \frac{5}{8} \\ -\frac{1}{8} \\ \hline \end{array}$ $\quad$ 25) $\begin{array}{r} \frac{5}{8} \\ +\frac{1}{8} \\ \hline \end{array}$ $\quad$ 26) $\begin{array}{r} \frac{5}{6} \\ -\frac{1}{6} \\ \hline \end{array}$

27) $\frac{2}{9} + \frac{4}{9} =$

28) $\frac{2}{21} + \frac{5}{21} =$ $\quad$ 29) $\begin{array}{r} \frac{9}{11} \\ -\frac{1}{11} \\ \hline \end{array}$ $\quad$ 30) $\begin{array}{r} \frac{49}{50} \\ -\frac{9}{50} \\ \hline \end{array}$ $\quad$ 31) $\begin{array}{r} \frac{13}{24} \\ +\frac{5}{24} \\ \hline \end{array}$

32) $\frac{5}{13} + \frac{6}{13} =$

33) $\frac{8}{15} - \frac{4}{15} =$

# ADDING AND SUBTRACTING FRACTIONS HA-2

Name_____ Period_____ Date_____

| Objective: You will be able to add and subtract mixed numbers with common denominators. |
|---|

Adding and subtracting mixed numbers with common denominators.

To add or subtract mixed numbers with a common denominator, first add or subtract the fractions and then add or subtract the whole numbers.

| | Step 1<br>Add or subtract the fractions | Step 2<br>Add or subtract the whole numbers |
|---|---|---|
| $3\frac{1}{5}$ | $3\frac{1}{5}$ | $3\frac{1}{5}$ |
| $+\ 4\frac{2}{5}$ | $+\ 4\frac{2}{5}$ | $+\ 4\frac{2}{5}$ |
| | $\frac{3}{5}$ | $7\frac{3}{5}$ |

Add or subtract:

1) $5\frac{6}{7} - 1\frac{2}{7}$

2) $8\frac{7}{9} + 3\frac{1}{9}$

3) $10\frac{1}{3} + 2\frac{1}{3}$

4) $4\frac{4}{7} - 1\frac{3}{7}$

5) $1\frac{6}{11} + 4\frac{3}{11}$

6) $25\frac{2}{3} - 17\frac{1}{3}$

7) $2\frac{2}{5} + 3\frac{1}{5}$

8) $9\frac{11}{15} - 4\frac{7}{15}$

9) $3\frac{8}{9} - 1\frac{7}{9} =$

10) $2\frac{7}{13} + 3\frac{3}{13} + 7\frac{1}{13} =$

11) $3\frac{6}{11} + 2\frac{2}{11} - 4\frac{5}{11} =$

12) $8\frac{6}{7} - 5\frac{2}{7} =$

HA-2 (cont)

Some of the problems on this page are tricky. Be careful!

13) $3\frac{1}{5} + 5 = 8\frac{1}{5}$

14) $4\frac{3}{5} + 2 =$

15) $16 + 7\frac{3}{5} =$

16) $4\frac{1}{3} + \frac{1}{3} =$

17) $1\frac{4}{7} + \frac{2}{7} =$

18) $\frac{1}{11} + 5\frac{7}{11} =$

19) $3\frac{4}{11} + \frac{5}{11} =$

20) $\frac{2}{9} + 6\frac{2}{9} =$

21) $4\frac{3}{4} - 2 =$

22) $6\frac{1}{2} - 5 =$

23) $5\frac{3}{5} - \frac{2}{5} =$

24) $8\frac{1}{6} - 5 =$

25) $16\frac{5}{7} - \frac{3}{7} =$

26) $5\frac{3}{5} - 5\frac{1}{5} = \frac{2}{5}$

27) $10\frac{7}{9} - 10\frac{2}{9} =$

28) $3\frac{1}{4} - 3 =$

29) $3\frac{5}{6} - 1\frac{5}{6} =$

30) $12\frac{3}{8} - 8\frac{3}{8} =$

31) $9\frac{1}{2} - \frac{1}{2} =$

32) $4\frac{1}{5} - \frac{1}{5} =$

33) $8\frac{2}{5} - \frac{2}{5} =$

# ADDING AND SUBTRACTING FRACTIONS HA - 3

Name_____ Period_____ Date_____

| Objective: | You will be able to add and subtract mixed numbers and simplify. |
|---|---|

## Simplifying Mixed Numbers

Whenever you add or subtract and find that the answer is a mixed number, you should find the simplest form for that mixed number. A mixed number in simplest form has its fractionspart in simplest form.

The fraction part is in simplest form

| simplest form | | | |
|---|---|---|---|
| $1\frac{1}{3}$ | $3\frac{5}{7}$ | $2\frac{1}{2}$ | $8\frac{2}{3}$ |
| $1\frac{4}{5}$ | | $3\frac{4}{9}$ | |

| not simplest form | | | |
|---|---|---|---|
| $3\frac{2}{4}$ | $1\frac{4}{6}$ | $2\frac{8}{10}$ | $4\frac{3}{9}$ |
| $5\frac{6}{8}$ | | $7\frac{5}{10}$ | |

The fraction part is not in simplest form.

Sometimes you must simplify the fraction part of a mixed number to find its simplest form.

Simplify each mixed number below by simplifying its fraction part.

1) $3\frac{2}{4} = 3\frac{1}{2}$

2) $1\frac{4}{6} =$

3) $5\frac{5}{10} =$

4) $3\frac{10}{15} =$

5) $4\frac{8}{12} =$

6) $5\frac{3}{9} =$

7) $4\frac{3}{6} =$

8) $6\frac{6}{9} =$

9) $1\frac{10}{12} =$

10) $17\frac{12}{24} =$

11) $12\frac{12}{15} =$

12) $8\frac{7}{14} =$

13) $25\frac{6}{15} =$

14) $12\frac{10}{12} =$

15) $5\frac{4}{10} =$

Add or subtract, then simplify.

16) $7\frac{5}{6} - \frac{1}{6}$

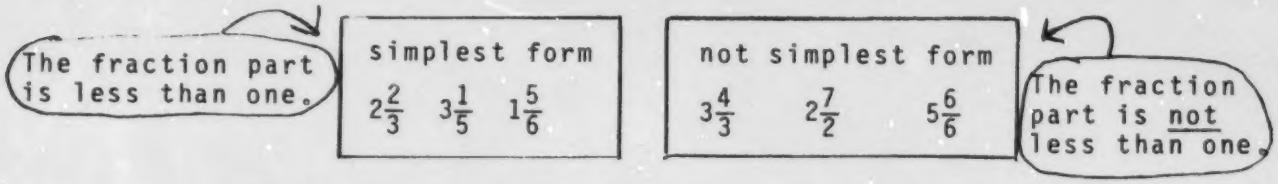
17) $2\frac{7}{12} + 7\frac{2}{12}$

18) $3\frac{12}{25} + 4\frac{8}{25}$

19) $8\frac{7}{9} - 5\frac{1}{8}$

HA-3 (cont)

The fraction part of a mixed number in simplest form must be a fraction less than one.


The fraction part is less than one.
simplest form
$2\frac{2}{3}$ $3\frac{1}{5}$ $1\frac{5}{6}$
not simplest form
$3\frac{4}{3}$ $2\frac{7}{2}$ $5\frac{6}{6}$
The fraction part is not less than one.

Circle the three mixed numbers in simplest form.

$3\frac{6}{9}$ $5\frac{5}{2}$ $1\frac{3}{4}$ $6\frac{11}{22}$ $8\frac{10}{15}$ $3\frac{5}{6}$ $10\frac{20}{30}$ $7\frac{7}{11}$ $17\frac{2}{4}$

$2\frac{6}{5}$ is not in simplest form because $\frac{6}{5}$ is not less than one. What is the simplest form for $2\frac{6}{5}$ ?

$2\frac{6}{5}$ can be simplified by just renaming $\frac{6}{5}$ as the mixed number $1\frac{1}{5}$ and add it to 2.

$2\frac{6}{5} = 2 + 1\frac{1}{5} = 3\frac{1}{5}$ $\quad 1\frac{5}{2} = 1 + 2\frac{1}{2} = 3\frac{1}{2}$

Simplify each mixed number below. Rename the fraction part as a mixed or whole number. Add what you get to the first whole number.

20) $3\frac{4}{3} =$ 21) $1\frac{3}{2} =$ 22) $4\frac{5}{5} =$ 23) $6\frac{7}{6} =$

24) $4\frac{8}{5} =$ 25) $3\frac{11}{6} =$ 26) $11\frac{10}{7} =$ 27) $12\frac{4}{3} =$

28) $1\frac{9}{5} =$ 29) $1\frac{8}{7} =$ 30) $4\frac{5}{4} =$ 31) $5\frac{6}{5} =$

32) $5\frac{8}{8} =$ 33) $4\frac{8}{5} =$ 34) $2\frac{7}{4} =$ 35) $8\frac{7}{5} =$

Add or subtract. Simplify when possible.



36) $3\frac{2}{3} + 7\frac{2}{3}$

$10\frac{4}{3} = 11\frac{1}{3}$

37) $1\frac{4}{5} + 3\frac{3}{5}$

38) $\frac{6}{7} + \frac{6}{7}$

39) $7\frac{1}{2} - 3\frac{1}{2}$

40) $4\frac{3}{4} + 5\frac{1}{4}$

41) $8\frac{7}{8} - 5\frac{1}{8}$

42) $5 + 1\frac{1}{3}$

43) $4\frac{1}{5} + 3\frac{4}{5}$

44) $4\frac{3}{4} - 3\frac{1}{4}$

45) $7\frac{11}{12} - 6\frac{8}{12}$

46) $5 + 3\frac{1}{2}$

47) $8\frac{7}{8} + 13\frac{5}{8}$

48) $7\frac{11}{13} + 9\frac{12}{13}$

49) $\frac{5}{6} + 3\frac{1}{6}$

50) $9\frac{2}{7} - 6\frac{2}{7}$

51) $11\frac{3}{4} - 8\frac{1}{4}$

52) $7\frac{5}{12} - 6\frac{1}{12}$

53) $3\frac{5}{7} + 5\frac{6}{7}$

54) $4 + 3\frac{1}{2}$

55) $11\frac{4}{5} - 8\frac{1}{5}$

56) $8\frac{5}{6} - 6\frac{1}{6}$

57) $11\frac{4}{5} + 3\frac{3}{5}$

58) $7\frac{1}{2} - 6$

LEVEL HA Checkpoint 1 - 3

Addition and Subtraction
of Fractions with like denominators

Name _____
Period _____
Date _____

Add or subtract

1) $\begin{array}{r} \frac{4}{9} \\ +\frac{1}{9} \\ \hline \end{array}$

2) $\begin{array}{r} \frac{8}{11} \\ -\frac{3}{11} \\ \hline \end{array}$

3) $\frac{6}{17} + \frac{9}{17} =$

4) $\frac{5}{7} - \frac{3}{7} =$

(HA-1)

5) $\begin{array}{r} 5\frac{1}{7} \\ +1\frac{1}{7} \\ \hline \end{array}$

6) $\begin{array}{r} 2\frac{3}{5} \\ -1\frac{2}{5} \\ \hline \end{array}$

7) $5\frac{1}{6} - 5 =$

8) $7\frac{1}{9} + 3\frac{7}{9} =$

(HA-2)

Add or subtract and simplify (reduce and change to proper fractions)
Please show work and circle final answer.

9) $\begin{array}{r} 2\frac{7}{10} \\ -\frac{3}{10} \\ \hline \end{array}$

10) $\begin{array}{r} \frac{4}{9} \\ +5\frac{5}{9} \\ \hline \end{array}$

11) $3\frac{4}{5} + 1\frac{3}{5} =$

12) $5\frac{7}{8} - 4\frac{1}{8} =$

(HA-3)

LEVEL HA Checkpoint A 1 - 3

Addition and Subtraction
of Fractions with like denominators

Name_____
Period_____
Date_____

Add or subtract

1) $\frac{3}{7} - \frac{1}{7}$

2) $\frac{4}{9} + \frac{1}{9}$

3) $\frac{7}{11} - \frac{3}{11} =$

4) $\frac{5}{13} + \frac{6}{13} =$

(HA-1)

5) $2\frac{17}{19} - \frac{12}{19}$

6) $5\frac{3}{11} + 4\frac{5}{11}$

7) $7\frac{3}{4} - 7 =$

8) $9\frac{1}{9} + 2\frac{4}{9} =$

(HA-2)

Add or subtract and simplify (reduce and change to proper fractions)
Show work!

9) $5\frac{3}{8} - \frac{1}{8}$

10) $\frac{5}{7} + 3\frac{3}{7}$

11) $2\frac{2}{5} + 1\frac{3}{5} =$

12) $4\frac{8}{9} - 3\frac{1}{9} =$

(HA-3)

# ADDING AND SUBTRACTING FRACTIONS HA - 4

Name_____ Period_____ Date_____

| Objective: You will be able to find the lowest common denominator of any fraction. |
|---|

To add fractions you have to have like fractions (same denominators). So if the denominators are unlike you have to find the <u>lowest common denominator</u>.

There are three ways to find the lowest common denominator.

1) If the smaller denominator goes into the larger denominator evenly, then the larger denominator is the lowest common denominator.

Example: $\frac{1}{4}, \frac{7}{12}$ L.C.D. = 12 $\frac{3}{5}, \frac{1}{10}$ L.C.D. = _____ $\frac{3}{8}, \frac{1}{4}$ L.C.D. = _____

2) If the denominators have no common factor just multiply them together.

Example: $\frac{1}{4}, \frac{3}{5}$ $4 \times 5 = 20$ L.C.D. = 20 $\frac{2}{3}, \frac{1}{4}$ L.C.D. = _____ $\frac{1}{6}, \frac{3}{7}$ L.C.D. = _____

3) Step 1: Choose the larger denominator.
Step 2: Write the first multiple (1 x larger denominator).
Step 3: Will the smaller denominator divide into this multiple evenly?
If "yes", you have the L.C.D.
If "no", write the next multiple and repeat Step 3.

EX) $\frac{1}{6}, \frac{2}{9}$

STEP 1: 9

STEP 2: $9 \times 1 = 9$; $9 \times 2 = 18$

STEP 3: $6\overline{)9}$ R3 NO; $6\overline{)18}$ YES

So LCD = 18

TRY THESE

1) $\frac{1}{8}, \frac{1}{6}$ L.C.D. = _____

2) $\frac{1}{9}, \frac{2}{15}$ L.C.D. = _____

3) $\frac{1}{4}, \frac{5}{6}$ L.C.D. = _____

4) $\frac{7}{12}, \frac{1}{8}$ L.C.D. = _____

5) $\frac{5}{8}, \frac{1}{2}$ L.C.D. = ____

6) $\frac{2}{3}, \frac{1}{5}$ LCD = ____

7) $\frac{9}{10}, \frac{1}{6}$ LCD = ____

8) $\frac{1}{9}, \frac{7}{8}$ L.C.D = ____

9) $\frac{2}{5}, \frac{3}{10}$ LCD = ____

10) $\frac{1}{7}, \frac{3}{5}$ LCD = ____

11) $\frac{5}{12}, \frac{7}{12}$ LCD = ____

12) $\frac{8}{15}, \frac{2}{9}$ LCD = ____

13) $\frac{5}{6}, \frac{1}{20}$ LCD = ____

14) $\frac{1}{6}, \frac{5}{12}$ L.C.D = ____

When we have the L.C.D., the next step is to convert the numerators.

Example: $\frac{5}{6} = \frac{}{18}$

$\frac{5}{6} \rightarrow \frac{}{18}$ (3, 15, 0)

$\frac{5}{6} = \frac{15}{18}$

1) Divide 6 into 18 (18 - 6 = 3)
2) Multiply 3 times 5 (3 x 5 = 15)
3) Write your answer (15)

or $\frac{5}{6} = \frac{}{18}$

$\frac{5 \times 3}{6 \times 3} = \frac{15}{18}$

1) 6 times what equals 18 (3)
2) Multiply the numerator by the same number (3)

15) $\frac{1}{7} = \frac{}{28}$

16) $\frac{5}{6} = \frac{}{24}$

17) $\frac{3}{4} = \frac{}{8}$

18) $\frac{2}{3} = \frac{}{3}$

19) $\frac{3}{4} = \frac{}{16}$

20) $\frac{3}{5} = \frac{}{30}$

21) $\frac{7}{10} = \frac{}{20}$

22) $\frac{1}{6} = \frac{}{12}$

23) $\frac{4}{5} =$ [illegible]

24) $\frac{3}{7} = \frac{}{35}$

25) $\frac{5}{8} = \frac{}{32}$

26) $\frac{2}{3} = \frac{}{9}$

# ADDING AND SUBTRACTING FRACTIONS HA - 5

Name_____ Period_____ Date_____

**Objective:** You will be able to add fractions and mixed numbers with unlike denominators.

Follow these steps in addition of fractions.

Step 1: Look at the denominators. If they are the same go to Step 2. If not, find the lowest common denominator and write equivalent fractions.

$$\begin{array}{r} \frac{3}{4} = \frac{15}{20} \\ +\ \frac{2}{5} = \frac{8}{20} \end{array} \qquad \text{L.C.D.} = 20$$

Step 2: Put the denominator down in the sum. Add the numerators together.

Step 3: Add whole numbers together.

Step 4: Simplify answer.

Example 1:

$$\begin{array}{r} 2\frac{7}{8} \\ +\ 3\frac{3}{5} \end{array}$$

STEP 1
LCD = 40
$2\frac{7}{8} = \frac{35}{40}$
$3\frac{3}{5} = \frac{24}{40}$

STEP 2
$2\frac{35}{40}$
$3\frac{24}{40}$
$\frac{59}{40}$

STEP 3
$2\frac{35}{40}$
$3\frac{24}{40}$
$5\frac{59}{40}$

STEP 4
$5\frac{59}{40} = 5 + 1\frac{19}{40}$
$6\frac{19}{40}$

TRY THESE SIMPLIFY ANSWERS

1) $\begin{array}{r} \frac{1}{2} \\ +\ \frac{1}{3} \end{array}$

2) $\begin{array}{r} \frac{3}{4} \\ +\ \frac{1}{12} \end{array}$

3) $\begin{array}{r} \frac{2}{3} \\ +\ \frac{1}{3} \end{array}$

4) $\begin{array}{r} \frac{5}{6} \\ +\ \frac{2}{3} \end{array}$

5) $\begin{array}{r} \frac{5}{8} \\ +\ \frac{5}{6} \end{array}$

6) $\begin{array}{r} \frac{1}{4} \\ \frac{1}{3} \\ +\ \frac{1}{2} \end{array}$

7) $\begin{array}{r} \frac{6}{7} \\ +\ \frac{2}{5} \end{array}$

8) $\begin{array}{r} \frac{1}{2} \\ \frac{3}{5} \\ +\ \frac{9}{10} \end{array}$

9) $3\frac{5}{8} + 5$

10) $4\frac{2}{3} + \frac{1}{2}$

11) $6\frac{1}{5} + 3\frac{1}{2}$

12) $3\frac{1}{2} + 2 + 1\frac{1}{8}$

13) $1\frac{1}{3} + 1\frac{1}{2} + 1\frac{1}{6}$

14) $6\frac{4}{5} + 7\frac{1}{10}$

15) $4\frac{2}{3} + 3\frac{1}{4}$

16) $2\frac{4}{5} + 3\frac{3}{4}$

17) $4\frac{4}{9} + 2\frac{2}{3}$

18) $5\frac{1}{4} + 3\frac{1}{3} + 1\frac{1}{2} + 7\frac{7}{12}$

19) $6\frac{3}{5} + 1\frac{1}{10} + 2\frac{7}{20}$

20) $1\frac{1}{2} + 1\frac{4}{5} + 3\frac{7}{10}$

21) $4\frac{1}{3} + 8\frac{3}{4} + 6\frac{7}{12} =$

# ADDING AND SUBTRACTING FRACTIONS HA - 6

Name_____ Period_____ Date_____

| Objective: | You will be able to subtract fractions and mixed numbers with unlike denominators, borrowing when necessary. |
|---|---|

Study the following examples:

Example 1:

$$\frac{2}{3} = \frac{8}{12}$$
$$-\frac{1}{4} = \frac{3}{12}$$
$$\frac{5}{12}$$

1. Find L.C.D.
2. Convert the numerators
3. Subtract the numerators

Example 2:

$$4\frac{2}{3} = 4\frac{8}{12}$$
$$-2\frac{1}{4} \quad 2\frac{3}{12}$$
$$2\frac{5}{12}$$

1. Find L.C.D.
2. Convert the numerators
3. Subtract the numerators
4. Subtract the whole numbers

Subtract and Simplify it needed:

Example 1:

1) $\frac{5}{8} - \frac{1}{3}$ =

2) $\frac{17}{30} - \frac{4}{15}$ =

3) $\frac{9}{10} - \frac{2}{3}$ =

4) $\frac{11}{12} - \frac{1}{6}$ =

5) $\frac{6}{9} - \frac{1}{2}$ =

6) $\frac{4}{5} - \frac{1}{3}$ =

7) $\frac{7}{12} - \frac{1}{4}$ =

8) $\frac{15}{16} - \frac{5}{8}$ =

Example 2:

9) $6\frac{4}{5} - 1\frac{1}{4}$ = ____

10) $3\frac{4}{5} - 2\frac{3}{10}$ = ____

11) $4\frac{11}{12} - 2\frac{5}{6}$ = ____

12) $12\frac{7}{8} - 9\frac{5}{6}$ = ____

13) $8\frac{3}{4} - 3\frac{2}{5}$ = ____

14) $7\frac{5}{6} - 5\frac{1}{4}$ = ____

These last two examples involve borrowing. To subtract a mixed number from a whole number you must know how to change 1 (one) to a fraction. ONE IS EQUAL TO ANY NUMBER OVER ITSELF.

For example:

$$1 = \frac{2}{2} = \frac{3}{3} = \frac{4}{4} = \frac{5}{5} = \frac{6}{6} = \frac{7}{7} \ldots\ldots\ldots$$

Fill in the numerators:

15) $1 = \frac{15}{15}$

16) $1 = \frac{105}{105}$

17) $1 = \frac{32}{32}$

18) $1 = \frac{27}{27}$

$$\begin{array}{r} 8 \\ -\ 2\frac{2}{3} \\ \hline 5\frac{1}{3} \end{array}$$

8 MINUEND

$-2\frac{2}{3}$ SUBTRAHEND

$5\frac{1}{3}$ DIFFERENCE

Example 3:

$$\begin{array}{r} 8 \\ -\ 2\frac{2}{3} \\ \hline 5\frac{1}{3} \end{array}$$

minuend

subtrahend

$$\begin{array}{r} 8 \\ -\ 2\frac{2}{3} \\ \hline \end{array} = 7\frac{3}{3} = 2\frac{2}{3}$$

$$5\frac{1}{3}$$

1) Borrow 1 from the whole number (8-- 1 = 7)

2) Change 1 to a fraction w with the same denominator as the subtrahend, $(1 = \frac{3}{3})$

3) Subtract and simplify

19) $3 - \frac{2}{3}$ = ____

20) $7 - \frac{1}{4}$ = ____

21) $9 - \frac{7}{8}$ = ____

Example 4:

The only differences between Example 3 and 4 is to combine the $\frac{4}{4}$ with the $\frac{1}{4}$ that was there. Look at the circle parts.

Ex 3. $3 - 1\frac{3}{4} = 2\frac{4}{4} - 1\frac{3}{4} = 1\frac{1}{4}$

Ex 4. $3\frac{1}{4} - 1\frac{3}{4} = 2\frac{1}{4} + \frac{4}{4} = \frac{5}{4}$

$2\frac{1}{4} - 1\frac{3}{4} = 1\frac{2}{4} = 1\frac{1}{2}$

22) $5 - 2\frac{2}{3}$

23) $5\frac{1}{3} - 2\frac{2}{3}$

24) $8 - 5\frac{4}{5}$

25) $8\frac{2}{5} - 5\frac{4}{5}$

26) $4 - 2\frac{9}{10}$

27) $4\frac{2}{5} - 2\frac{9}{10}$

28) $4\frac{1}{4} - 1\frac{3}{4}$

29) $3\frac{2}{3} - 2\frac{9}{10}$

30) $7\frac{2}{3} - 3\frac{11}{12}$

Now that you know how to borrow, here are two different short cut methods.

METHOD A

$5\frac{1}{4} - 2\frac{3}{4}$ becomes $4\frac{5}{4} - 2\frac{3}{4}$

1) Find L.C.D.
2) Borrow one from the whole number (5 - 1 = 4)
3) Add the numerator and denominator of the fraction in the minuend.

$\frac{1}{4} = (1 + 4 = 5) = \frac{5}{4}$

4) Subtract and simplify

METHOD B

$5\frac{1}{4} - 2\frac{3}{4}$ becomes $4\frac{1}{4} = \frac{5}{4}$

$-2\frac{3}{4}$

1) Find L.C.D.
2) Borrow one from the whole number and make fraction in minuend a mixed number.
3) Change mixed number to an improper fraction
4) Subtract and simplify

Subtract, try the Short Cut Methods

31) $3\frac{7}{11} - 1\frac{9}{11}$

32) $4\frac{1}{2} - 3\frac{19}{20}$

33) $10\frac{1}{3} - 3\frac{7}{8}$

34) $7\frac{2}{3} - 3\frac{11}{12}$

35) $6\frac{2}{3} - 2\frac{7}{8}$

36) $8\frac{2}{3} - 6\frac{9}{10}$

TRY THESE ALL DIFFERENT KINDS

37) $4 - 2\frac{1}{2}$

38) $2\frac{1}{2} - 1\frac{1}{3}$

39) $7\frac{1}{2} - 5$

40) $\frac{7}{8} - \frac{5}{6}$

41) $4\frac{1}{2} - 3\frac{5}{6}$

42) $6 - \frac{2}{3}$

43) $12\frac{1}{2} - 8\frac{2}{3}$

44) $8 - \frac{7}{11}$

45) $3\frac{2}{3} - 1\frac{7}{8}$

LEVEL HA Checkpoint 4 - 6

Name_____

Period_____

Date_____

Adding and subtracting Fractions
with unlike denominators

Find the Lowest Common Denominator:

1) a) $\frac{1}{2}, \frac{3}{4}, \frac{5}{6}$ L.C.D. =

b) $\frac{1}{9}, \frac{7}{8}$ L.C.D. =

c) $\frac{1}{16}, \frac{3}{4}$ L.C.D. =

Fill in the numerator:

2) a) $\frac{2}{3} = \frac{}{12}$ b) $\frac{8}{9} = \frac{}{18}$ c) $\frac{4}{10} = \frac{}{5}$

(HA-4)

Add, simplify answer (Reduce and change to proper fractions.

3) $\frac{1}{4} + \frac{1}{3}$ 4) $3\frac{1}{2} + 2\frac{3}{4}$ 5) $1\frac{3}{7} + 2\frac{2}{3}$

(HA-5)

Fill in the blank:

6) $1 = \frac{}{4}$ 7) $\frac{7}{7} = \_\_$

Subtract, simplify answers (Reduce and change to proper fractions)

8) $9 - \frac{5}{6}$ 9) $7\frac{3}{8} - 5\frac{5}{9}$ 10) $7\frac{2}{3} - 4\frac{3}{4}$



(HA-6)

LEVEL HA Checkpoint A 4 - 6

Name_____

Period_____

Date_____

Adding and Subtracting Fractions
with unlike denominators

Find the Lowest Common Denominator:

1) a) $\frac{3}{5}, \frac{7}{15}$ L.C.D. =

b) $\frac{1}{6}, \frac{5}{8}$ L.C.D =

c) $\frac{1}{7}, \frac{5}{6}$ L.C.D =

Fill in the numerator:

2) a) $\frac{1}{7} = \frac{}{14}$ b) $\frac{3}{5} = \frac{}{20}$ c) $\frac{2}{3} = \frac{}{12}$

(HA-4)

Add, simplify answers (Reduce and change to proper fractions)

3) $\frac{5}{6} + \frac{1}{2}$ = _____

4) $5\frac{3}{4} + 1\frac{2}{3}$ = _____

5) $5\frac{3}{7} + 2\frac{2}{3}$ = _____

(HA-5)

Fill in the blanks:

6) $1 = \frac{}{5}$ 7) $\frac{32}{32} =$ ____

Subtract, simplify answers (Reduce and change to proper fractions)
Please show work and circle final answers.

8) $8 - \frac{3}{7}$ = _____

9) $2\frac{1}{20} - 1\frac{5}{6}$ = _____

10) $8\frac{1}{10} - 3\frac{2}{5}$ = _____



(HA-6)

LEVEL HA POSTTEST

Adding and Subtracting Fractions

Name_____

Period_____

Date_____

Add or subtract

1) $\begin{array}{r} \frac{5}{19} \\ +\frac{4}{19} \\ \hline \end{array}$

2) $\begin{array}{r} \frac{11}{21} \\ -\frac{10}{21} \\ \hline \end{array}$

3) $\frac{3}{20} + \frac{1}{20} + \frac{7}{20} =$

4) $\frac{7}{29} - \frac{5}{29} =$

(HA-1)

5) $\begin{array}{r} 5\frac{2}{7} \\ +\frac{1}{7} \\ \hline \end{array}$

6) $\begin{array}{r} 3\frac{7}{9} \\ -\frac{2}{9} \\ \hline \end{array}$

7) $8\frac{5}{9} - 8 =$

8) $7 + 2\frac{2}{9} =$

(HA-2)

Add or subtract, simplify (reduce and change to proper fractions)

9) $\begin{array}{r} 7\frac{2}{5} \\ +6\frac{4}{5} \\ \hline \end{array}$

10) $\begin{array}{r} 3\frac{7}{8} \\ -2\frac{1}{8} \\ \hline \end{array}$

11) $14\frac{5}{8} - 13\frac{1}{8} =$

12) $1\frac{5}{7} + 8\frac{6}{7} =$

(HA-3)

Find the Lowest Common Denominators:

13) $\frac{3}{4}, \frac{3}{5}$ LCD =

14) $\frac{7}{12}, \frac{2}{3}$ LCD =

15) $\frac{7}{8}, \frac{1}{6}$ LCD =

16) $\frac{11}{42}, \frac{17}{21}$ LCD =

Fill in the blanks:

17) $\frac{1}{2} = \frac{}{10}$ 18) $\frac{2}{3} = \frac{}{12}$

(HA-4)

Add, simplify (change and reduce answers) Show work!

19) $\frac{5}{6} + \frac{3}{7}$ 20) $9\frac{5}{6} + 3\frac{2}{3}$ 21) $3\frac{7}{8} + \frac{3}{4}$ 22) $12\frac{7}{10} + 8\frac{5}{8}$

(HA-5)

Subtract, simplify (change and reduce answers) Show work!
Circle final answer.

23) $5 - \frac{2}{3}$ 24) $5\frac{1}{9} - 2\frac{2}{3}$ 25) $9\frac{1}{3} - 6\frac{3}{4}$

26) $11\frac{1}{30} - 3\frac{7}{15}$ 27) $8 - 6\frac{1}{4}$

(HA-6)

LEVEL REVIEW HA

Adding and Subtracting Fractions

Name_____Period_____Date_____

Add or subtract fractions and simplify. (Reduce and change to proper fractions)

1. $\frac{5}{9} - \frac{4}{9}$

2. $\frac{9}{11} - \frac{7}{11}$

3. $\frac{5}{8} + \frac{1}{8} =$

(HA-1)

Add or subtract and simplify. (Reduce and change to proper fractions)
Show work and circle final answers

4. $10 + 3\frac{1}{5}$

5. $8\frac{5}{7} - \frac{3}{7}$

6. $7 + \frac{3}{4} =$

(HA-2)

7. $3\frac{5}{8} - \frac{1}{8}$

8. $\frac{3}{5} + 1\frac{2}{5}$

9. $7\frac{5}{6} - 1\frac{1}{6} =$

(HA-3)

Find the lowest common denominator.

10. 14, 21, 3 L.C.D. = _____

Fill in the numerator.

11. $\frac{1}{6} = \frac{\quad}{12}$

12. $\frac{5}{7} = \frac{\quad}{21}$

(HA-4)

Add, simplify answer (reduce & change). Show work and circle final answer.

13. $\frac{2}{3} + \frac{1}{4}$

14. $45\frac{1}{2} + 7\frac{1}{10}$

15. $3\frac{1}{2} + 4\frac{3}{8} =$

(HA-5)

Subtract, simplify answers (reduce & change). Show work and circle final answer.

16. $15 - \frac{7}{8}$

17. $3\frac{5}{21} - 1\frac{4}{7}$

18. $8\frac{1}{6} - 3\frac{3}{4}$

(HA-6)

LEVEL I Pretest

Name_____

Period_____

Working with Fractions

Date_____

Fill in the blanks with >, < or =

1) $\frac{1}{3}$ _ $\frac{1}{4}$ 2) $\frac{3}{4}$ _ $\frac{6}{8}$ 3) $\frac{6}{7}$ _ $\frac{8}{9}$

4) $1\frac{2}{3}$ _ $1\frac{3}{4}$ 5) $5\frac{1}{3}$ _ $6\frac{1}{5}$ 6) $2\frac{1}{5}$ _ $2\frac{2}{10}$

(I-1)

Arrange these fractions in ascending order:

7) $\frac{1}{2}, \frac{1}{4}, \frac{1}{3}, \frac{1}{5}$ _____

8) $\frac{4}{5}, \frac{7}{10}, \frac{2}{5}, \frac{9}{10}$ _____

Arrange these fractions in descending order:

9) $\frac{3}{8}, \frac{5}{8}, \frac{1}{8}, \frac{7}{8}$ _____

10) $\frac{51}{100}, \frac{1}{2}, \frac{11}{20}, \frac{3}{5}$ _____

(I-2)

Simplify these problems:

11) $\frac{1}{2} + \frac{3}{4} \times \frac{2}{5} =$

12) $\left(\frac{1}{2} + \frac{1}{4}\right) \times \frac{2}{3} =$

13) $\left[5 - \left(\frac{3}{5} - \frac{1}{2}\right) \div 1\frac{2}{5}\right] =$

14) $\left\{\frac{1}{2} + \left[\left(\frac{3}{4} - \frac{3}{4}\right) \times \frac{1}{3}\right]\right\} \div \frac{1}{4} =$

15) (I-3) $\dfrac{\frac{4}{5} + \frac{2}{3}}{1\frac{1}{3} \div \frac{3}{4}} =$

16) $\dfrac{3\frac{1}{3} \times \frac{3}{5} - \frac{1}{10}}{4 + \frac{1}{2} \div \frac{2}{3}} =$

Circle what operation you would use, then solve the word problems.

17) Troy weighed three rocks which were $2\frac{1}{4}$ pounds, $3\frac{1}{3}$ pounds, and $1\frac{5}{12}$ pounds. How much did the three rocks weigh together?

CIRCLE ONE: Add, Subtract, Multiply, Divide

ANSWER:_____pounds

18) Ingrid works in a record shop 5 days a week.for $3\frac{1}{2}$ hours each day. How many hours does she work a week?

CIRCLE ONE: Add, Subtract, Multiply, Divide

ANSWER:_____hours

19) Chaundra baked $4\frac{1}{3}$ dozen cookies and gave $2\frac{1}{4}$ dozen to her neighbor. How many dozen cookies does Chaundra have left?

CIRCLE ONE: Add, Subtract, Multiply, Divide

ANSWER:_____dozen

20) It takes Mike $\frac{1}{3}$ of an hour to type a page. How many pages can he type in $2\frac{1}{2}$ hours?

CIRCLE ONE: Add, Subtract, Multiply, Divide

ANSWER:_____pages

(I-4)

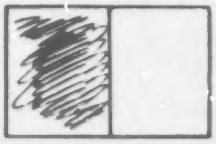
# WORKING WITH FRACTIONS I - 1

Name _____ Period _____ Date _____

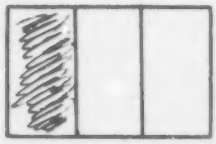
**Objective:** You will be able to compare two fractions and use $<, >, =$

## Comparing fractions

Shade $\frac{1}{2}$



Shade $\frac{1}{3}$



$\frac{1}{2}$ has a larger part shaded so

$\frac{1}{2}$ is greater than $\frac{1}{3}$

$\frac{1}{2} > \frac{1}{3}$

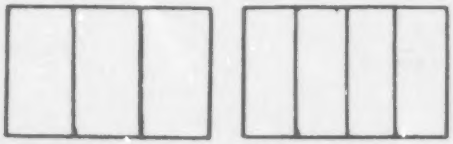
**Remember:**

$>$ is greater than

$<$ is less than

$=$ is equal to

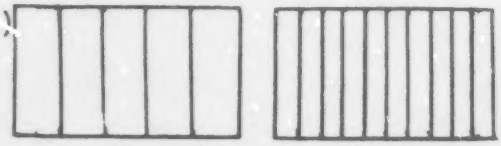
Shade the squares, then use $>$, $<$ or $=$

1) 

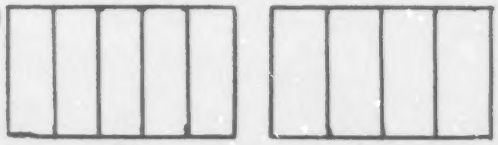
$\frac{2}{3}$ ___ $\frac{3}{4}$

2)

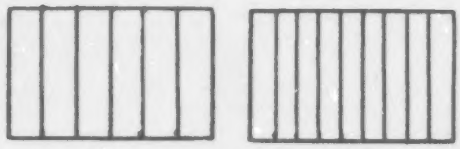
$\frac{1}{2}$ ___ $\frac{4}{8}$

3) 

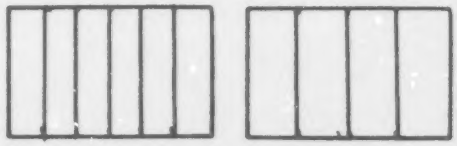
$\frac{3}{5}$ ___ $\frac{6}{10}$

4) 

$\frac{2}{5}$ ___ $\frac{1}{4}$

5) 

$\frac{5}{6}$ ___ $\frac{8}{9}$

6) 

$\frac{1}{6}$ ___ $\frac{1}{4}$

I-1 (cont)

Compare these fractions using $>$, $<$ or $=$

Example 1:

$\frac{1}{5}$ $\frac{2}{5}$

so $\frac{1}{5} < \frac{2}{5}$

1. When denominators are the same just compare the numerators (since 1 is less than 2, $\frac{1}{5}$ is less than $\frac{2}{5}$)

Example 2:

$\frac{1}{3}$ $\frac{1}{2}$

$\frac{1}{3} < \frac{1}{2}$

1) When the numerators are the same the fraction with the larger denominator is smaller (so the numerators are 1 so $\frac{1}{3}$ is the smaller fraction)

Example 3:

$\frac{4}{5}$ $\frac{2}{3}$

1. Find the L.C.D. (Lowest Common Denominator) (LCD of 5 and 3 is 15)
2. Change them to like fractions. $\frac{4}{5} = \frac{12}{15}$, $\frac{2}{3} = \frac{10}{15}$
3. Compare numerators (since $12 > 10$ $\frac{4}{5} > \frac{2}{3}$ )

Example 4:

$5\frac{7}{9}$ $4\frac{1}{2}$

1. With mixed numbers first compare the whole numbers to see if they are different.

(Since $5 > 4$, $5\frac{7}{9} > 4\frac{1}{2}$ )

2. If the whole numbers are the same then compare the fractional parts using Ex. 1 or 2 or 3.

1) $\frac{7}{8} \_\_ \frac{3}{4}$

2) $\frac{1}{5} \_\_ \frac{1}{2}$

3) $\frac{3}{8} \_\_ \frac{6}{16}$

4) $3\frac{1}{5} \_\_ 2\frac{4}{5}$

5) $2\frac{1}{6} \_\_ 2\frac{1}{3}$

6) $\frac{11}{12} \_\_ \frac{7}{8}$

7) $1\frac{2}{3} \_\_ 1\frac{3}{5}$

8) $\frac{6}{7} \_\_ \frac{8}{9}$

9) $4\frac{1}{2} \_\_ 4\frac{4}{8}$

10) $\frac{4}{5} \_\_ \frac{4}{9}$

11) $\frac{70}{100} \_\_ \frac{7}{10}$

12) $\frac{4}{4} \_\_ \frac{7}{7}$

# WORKING WITH FRACTIONS I - 2

Name _____ Period ____ Date _____

| Objective: You will be able to put fractions in ascending and descending order. |
|---|

Ascending means to go from smallest to largest.

Descending means to go from largest to smallest.

Write the fraction for the shaded part of each circle.

_____ _____ _____ _____ _____

Arrange the fractions above in ascending order.

_____ _____ _____ _____ _____

Now put these fractions in ascending order.

Example 1: $\frac{3}{4}, \frac{7}{8}, \frac{1}{2}, \frac{9}{16}$

1. Find the lowest common denominator
2. Change them to like fractions
3. Compare numberators

1) L.C.D. = 16

2) $\frac{3}{4} = \frac{12}{16}, \frac{7}{8} = \frac{14}{16}, \frac{1}{2} = \frac{8}{16}, \frac{9}{16} = \frac{9}{16}$

3) $\frac{8}{16}, \frac{9}{16}, \frac{12}{16}, \frac{14}{16}$ so $\frac{1}{2}, \frac{9}{16}, \frac{3}{4}, \frac{7}{8}$ is in ascending order.

Put in ascending order:

1) $\frac{1}{2}, \frac{3}{10}, \frac{2}{5}$ _____

2) $\frac{3}{5}, \frac{4}{5}, \frac{7}{10}$ _____

3) $\frac{3}{4}, \frac{5}{6}, \frac{7}{12}, \frac{1}{2}$ _____

Put in ascending order.

4) $\frac{7}{10}, \frac{4}{5}, \frac{9}{10}, \frac{19}{20}$ _____

5) $\frac{49}{100}, \frac{47}{100}, \frac{1}{2}, \frac{23}{50}$ _____

Put in descending order.

6) $\frac{1}{3}, \frac{1}{4}, \frac{1}{2}, \frac{1}{5}$ _____

7) $\frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}$ _____

8) $\frac{7}{10}, \frac{3}{5}, \frac{17}{20}, \frac{9}{10}$ _____

9) $\frac{2}{5}, \frac{1}{4}, \frac{3}{10}, \frac{1}{5}$ _____

10) $\frac{7}{8}, \frac{3}{4}, \frac{11}{16}, \frac{5}{8}$ _____

Name_____ Period_____ Date_____

| Objective: You will be able to work fraction problems with more then one operation. |
|---|

When you have fraction problems with more then one operation you need to follow the rule for order of operations.

RULE:
1. First multiply and/or divide from left to right
2. Add and subtract from left to right.

1) $\frac{1}{2} \times \frac{1}{4} + \frac{5}{6} =$

2) $\frac{2}{3} + \frac{2}{3} \div \frac{1}{4} =$

3) $\frac{2}{3} - \frac{1}{6} \div \frac{1}{2} + \frac{4}{7} =$

4) $\frac{4}{5} + \frac{2}{3} \times \frac{1}{6} =$

Some problems have fractions grouped using up to three different symbols.

1. First do what is in parenthesis (x, - then +, -)
2. then what is in brackets [x, - then +, -]
3. then what is in braces {x, - then +, -}

Example: $\left\{\left[\left(\frac{1}{2} - \frac{1}{4}\right) + \frac{3}{4}\right] \times \frac{1}{2}\right\} \div \frac{5}{6}$

work from inside out

parenthesis: $\left(\frac{1}{2} - \frac{1}{4}\right) = \frac{1}{4}$

$$\left\{\left[\frac{1}{4} + \frac{3}{4}\right] \times \frac{1}{2}\right\} \div \frac{5}{6}$$

then brackets $\left[\frac{1}{4} + \frac{3}{4}\right] = 1$

$$\left\{1 \times \frac{1}{2}\right\} \div \frac{5}{6}$$

then braces $\left\{1 \times \frac{1}{2}\right\} = \frac{1}{2}$

then complete $\frac{1}{2} \div \frac{5}{6} = \frac{1}{2} \times \frac{6^{3}}{5} = \frac{3}{5}$

I-3 (cont)

SOLVE THESE PROBLEMS

(5) $\frac{2}{3} \times \left(\frac{1}{4} - \frac{1}{5}\right) =$

(6) $\frac{2}{3} + 2 \times \left(\frac{1}{2} \div 5\right) =$

(7) $\left[\frac{3}{4} + \left(\frac{5}{6} \times \frac{1}{5}\right) - \frac{1}{2}\right] + 5 =$

(8) $4 \times \left[1\frac{1}{2} \times \left(\frac{1}{3} - \frac{1}{4}\right)\right] - \frac{5}{12} =$

(9) $\left\{\left[\frac{7}{8} - \left(3\frac{1}{3} \times \frac{3}{16}\right)\right] + \frac{5}{16}\right\} + 1 =$

(10) $50 - \left\{\left[\left(5 - 1\frac{2}{3}\right) \times 6\right] + 1\frac{1}{4}\right\} =$

To simplify complex fractions, with more than one operation in the numerator and/or the denominator, you have to work the numerator and denominator separately, leave answers as improper fractions then divide.

(11) $\dfrac{\frac{3}{4} - \frac{3}{8}}{\frac{5}{8} + \frac{1}{4}} =$

(12) $\dfrac{6\frac{1}{2} \times \frac{2}{3}}{\frac{4}{5} \div \frac{2}{3}} =$

(13) $\dfrac{3\frac{1}{3} \div 2\frac{1}{2}}{4\frac{1}{2} \times 2\frac{1}{3}} =$

(14) $\dfrac{\frac{4}{7} + \frac{2}{3} \times \frac{4}{5}}{\frac{6}{7} - \frac{2}{5} \div \frac{2}{3}} =$

# WORKING WITH FRACTIONS I - 4

Name_____ Period_____ Date_____

| Objective: You will be able to solve word problems using fractions. |
|---|

In this lesson decide which operation you use and completely solve each problem. Remember what the question is. (One helpful hint: the word "of" usually means to multiply.)

Example: half of eight, $\frac{1}{2} \times 8$ SHOW ALL YOUR WORK!

1) John has 24 pieces of candy. He decides to give $\frac{3}{4}$ of it away. How much does he give away?
CIRCLE ONE: Add, Subtract, Multiply, Divide
Answer: _____pieces of candy.

2) Four people shared 3 cakes equally. How much cake did each person get?
CIRCLE ONE: Add, Subtract, Multiply, Divide
Answer: _____of cake

3) Alfred ate $\frac{1}{4}$ of his sandwich and then gave $\frac{1}{3}$ of what is left away. How much of his sandwich did he give away?
FILL IN THE BLANKS:
Add, Subtract, Multiply, Divide - First_____then_____
Answer: _____of his sandwich

4) Mr. Jones had to have his car repaired. $\frac{2}{3}$ of the cost was for labor. If the bill was $426, what was the cost of the labor?
CIRCLE ONE: Add, Subtract, Multiply, Divide
Answer: _____labor cost

5) Jennifer walked $2\frac{1}{2}$ miles then rested. If the total walk was for $3\frac{3}{4}$ miles, how far did she walk after her rest?
CIRCLE ONE: Add, Subtract, Multiply, Divide
Answer: _____miles

6) If you get 15 miles per gallon in your car, how far can you travel on $5\frac{1}{5}$ gallons?
CIRCLE ONE: Add, Subtract, Multiply, Divide
Answer: _____miles

I-4 (cont)

7) A certain recipe calls for $1\frac{1}{2}$ cups of flour, $\frac{3}{4}$ cup of sugar and $\frac{1}{2}$ cup of water. When you mix this mess, how many cups do you have?

CIRCLE ONE: Add, Subtract, Multiply, Divide

Answer: _____cups

8) If you earn $2\frac{1}{2}$ dollars an hour, how much could you earn in 8 hours?

CIRCLE ONE: Add, Subtract, Multiply, Divide

Answer: _____dollars

9) What is half of one third of one fourth of 48?

CIRCLE ONE: Add, Subtract, Multiply, Divide

Answer: _____

10) How many $\frac{3}{4}$ hour classes can be scheduled in a school day that is 6 hours long?

CIRCLE ONE: Add, Subtract, Multiply, Divide

Answer: _____classes

11) A rabbit can go $\frac{3}{4}$ of a mile in one minute and a dog can go $\frac{2}{3}$ of a mile in one minute. How much farther does the rabbit go in one minute?

CIRCLE ONE: Add, Subtract, Multiply, Divide

Answer: _____farther

12) Regina did $\frac{1}{8}$ of her math homework on Monday, $\frac{1}{4}$ on Tuesday and $\frac{1}{2}$ on Wednesday. How much did she have left to do on Thursday night?

FILL IN THE BLANKS:

Add, Subtract, Multiply, Divide - First_____then_____

Answer: _____

LEVEL I Checkpoint 1-4

Working with Fractions

Name_____

Period_____

Date_____

Fill in the blanks with < , > or =

1) $\frac{1}{4}$ __ $\frac{1}{5}$ 2) $1\frac{6}{9}$ __ $1\frac{2}{3}$ 3) $3\frac{6}{7}$ __ $3\frac{8}{9}$

(I-1)

Arrange in ascending order

4) $\frac{1}{2}, \frac{3}{5}, \frac{7}{10}, \frac{13}{20}$ _____

Arrange in decending order

5) $\frac{3}{4}, \frac{2}{3}, \frac{7}{12}, \frac{5}{6}$ _____

(I-2)

Simplify these problems:

6) $\frac{3}{4} + \frac{2}{3} \div \frac{1}{4} =$

7) $\dfrac{\left(\frac{2}{3} - \frac{1}{4}\right) \times \frac{1}{2}}{\frac{2}{3} - \frac{1}{4} \times \frac{1}{2}} =$

8) $\left\{\left[\left(\frac{2}{5} + \frac{1}{3}\right) - \frac{11}{30}\right] \times 2\frac{1}{7}\right\} \div \frac{3}{28} =$

(I-3)

9) Dewayne earns $2\frac{1}{2}$ dollars an hour. How much did he earn today if he worked $3\frac{3}{4}$ hours?

CIRCLE ONE: Add, Subtract, Multiply, Divide

ANSWER:_____dollars

10) Carole took $3\frac{1}{5}$ chickens on a picnic. $2\frac{2}{3}$ chickens were eaten. How many chickens were left?

CIRCLE ONE: Add, Subtract, Multiply, Divide

ANSWER:_____chickens



(I-4)

LEVEL I A-Checkpoint 1-4

Working with Fractions

Name _____

Period _____

Date _____

Fill in the blanks with $<$ , $>$ or $=$

1) $\frac{1}{4}$ ___ $\frac{1}{5}$ 2) $2\frac{11}{15}$ ___ $2\frac{21}{30}$ 3) $\frac{8}{9}$ ___ $\frac{4}{5}$

(I-1)

Arrange in descending order

4) $\frac{1}{2}, \frac{7}{16}, \frac{3}{4}, \frac{5}{8}$ _____

Arrange in ascending order

5) $\frac{7}{12}, \frac{5}{12}, \frac{3}{4}, \frac{5}{6}$ _____

(I-2)

Simplify these problems:

6) $\frac{3}{4} - \frac{2}{3} \times \frac{1}{4} =$

7) $\dfrac{\left(\frac{5}{6} + \frac{2}{3}\right) \times 4}{\frac{1}{5} \div \frac{7}{10} + \frac{5}{7}} =$

8) $\frac{1}{5} + \left\{\frac{3}{5} \times \left[\frac{1}{3} + \left[\frac{1}{4} \div \left(\frac{1}{2} - \frac{2}{3} \times \frac{3}{5}\right)\right]\right]\right\} =$

(I-3)

9) Tami earned $10\frac{1}{2}$ dollars. She was paid $2\frac{1}{4}$ dollars per hour. How long did she work?

CIRCLE ONE: Add, Subtract, Multiply, Divide

ANSWER: _____ hours

10) Debbie caught four fish that weighed the following: $10\frac{1}{2}$ pounds, $8\frac{1}{3}$ pounds, $11\frac{1}{4}$ pounds, and $9\frac{11}{12}$ pounds. How many pounds of fish did Debbie catch?

CIRCLE ONE: Add, Subtract, Multiply, Divide

ANSWER: _____ Pounds

(I-4)

LEVEL I Posttest

Working with Fractions

Name_____

Period_____

Date_____

Fill in the blanks with $>$, $<$ or $=$

1) $\frac{1}{2}$ __ $\frac{1}{3}$ 2) $7\frac{3}{4}$ __ $6\frac{7}{12}$ 3) $\frac{12}{16}$ __ $\frac{3}{4}$

4) $\frac{4}{4}$ _ $\frac{5}{5}$ 5) $2\frac{3}{10}$ __ $2\frac{2}{5}$ 6) $1\frac{5}{6}$ __ $1\frac{11}{12}$

(I-1)

Arrange these fractions in descending order:

7) $\frac{1}{3}, \frac{1}{2}, \frac{1}{5}, \frac{1}{4}$ _____

8) $\frac{7}{12}, \frac{3}{4}, \frac{5}{6}, \frac{2}{3}$ _____

Arrange these fraction in ascending order

9) $\frac{5}{8}, \frac{11}{16}, \frac{3}{4}$ _____

10) $\frac{7}{20}, \frac{3}{10}, \frac{31}{100}, \frac{2}{5}$ _____

(I-2)

Simplify these problems:

11) $\frac{1}{3} + \frac{2}{5} \times \frac{5}{8} =$ 12) $\left(\frac{2}{3} + \frac{1}{4}\right) \times \frac{4}{5} =$

13) $\left[7 - \left(3\frac{1}{2} \times \frac{2}{3}\right)\right] \div \frac{5}{6} =$ 14) $\left\{\left[\left(\frac{7}{10} + \frac{4}{5}\right) - \frac{1}{2}\right] \div 3\right\} \times \frac{3}{8} =$

15) $\dfrac{\frac{5}{6} + \frac{3}{8}}{1\frac{2}{3} \div 1\frac{1}{7}} =$ 16) $\dfrac{5 - 2\frac{3}{4}}{\frac{9}{16} \times 6} =$

(I-3)

Level I Posttest (cont)

Circle what operation you would use, then solve the word problems.

17) Marlin sawed a $2\frac{1}{2}$ foot board into 4 equal pieces. How long was each piece of board?

CIRCLE ONE: Add, Subtract, Multiply, Divide

ANSWER:_____ foot

18) Lisa went on a crash diet. She lost $\frac{5}{6}$ pounds, $1\frac{1}{3}$ pounds and $\frac{1}{2}$ pound in the first three weeks. How many pounds did she lose?

CIRCLE ONE: Add, Subtract, Multiply, Divide

ANSWER:_____ pounds

19) Gilbert worked $3\frac{1}{2}$ hours at the computer store and was paid $4\frac{1}{4}$ dollars per hour. How much did he earn?

CIRCLE ONE: Add, Subtract, Multiply, Divide

ANSWER:_____ dollars

20) Becky had $4\frac{3}{4}$ pizzas. She put olives on $2\frac{7}{8}$ of them. How many pizzas did not have olives?

CIRCLE ONE: Add, Subtract, Multiply, Divide

ANSWER:_____pizzas

LEVEL REVIEW I

Working with Fractions

Name_____Period_____Date_____

Fill in the blanks with $>$, $<$ or $=$

1) $\frac{1}{4}$ ___ $\frac{1}{5}$ 2) $\frac{11}{22}$ ___ $\frac{3}{6}$ 3) $3\frac{6}{7}$ ___ $3\frac{8}{9}$

(I-1)

Arrange in ascending order.

4) $\frac{1}{2}, \frac{3}{5}, \frac{7}{10}, \frac{13}{20}$ _____

Arrange in descending order.

5) $\frac{7}{16}, \frac{3}{4}, \frac{5}{8}, \frac{1}{2}$ _____

(I-2)

Simplify these problems.

6) $\frac{1}{3} + \frac{2}{5} \times \frac{5}{8} =$ 7) $\left(\frac{1}{2} + \frac{1}{4}\right) \times \frac{2}{3} =$

8) $\left\{\left[\left(\frac{2}{5} + \frac{1}{3}\right) - \frac{11}{30}\right] \times 2\frac{1}{7}\right\} \div \frac{3}{28} =$

(I-3)

9) Michele worked for $2\frac{3}{4}$ hours and was paid $3\frac{1}{2}$ dollars an hour. How much did she earn?

Circle one: Add, Subtract, Multiply, Divide

Answer: _____dollars

10. John put $2\frac{1}{4}$ cups of flour, $1\frac{7}{8}$ cups water and $\frac{1}{2}$ cup raisins in a bowl. How many cups of this mixture did John have?

Circle one: Add, Subtract, Multiply, Divide

(I-4) Answer: _____cups



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